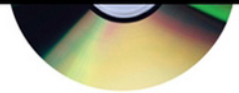

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Published simultaneously in Canada

ISBN: 978-0-470-11457-5

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Library of Congress Cataloging-in-Publication Data is available from the publisher.

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For my son, Enzo, whom I can never take enough pictures of

Acknowledgments

First and foremost, I must thank everyone at Sybex and John Wiley & Sons for making this book possible. Thanks to publishers Neil Edde and Dan Brodnitz and to acquisitions editor Pete Gaughan for sharing my vision on this project and for being as genuinely enthusiastic about Photoshop as I am. Thanks also to developmental editor Doug Nelson for helping me organize this title and paying such close attention to the details, and to Walt Dietrich for acting as my technical editor and making sure every step, shortcut, and tip is correct.

Thank you to Dr. Taz Tally for his extensive contributions to the manuscript.

Special thanks to my copyeditor, Sharon Wilkey, for making this book read as well as it does. I must also thank my production editor, Sarah Groff-Palermo, for working with me on the book's schedule and keeping everything on track. I would also like to thank compositor Maureen Forys for doing such a great job of laying out the book.

Loving thanks to my wife, Jill, and to my son, Enzo, for being so patient while I was busy writing this book. Thanks also to Mom, Dad, Val, Bob and Evelyn Innocenti, and the rest of my extended family for being so supportive.

I must also thank Lynda Weinman, Michael Ninness, Garo Green, Tanya Staples, Chris Mattia, and the rest of the wonderful staff at Lynda.com for allowing me to be a part of their excellent online instructor team and for being so much fun to work with.

I would also like to thank CreativePro.com and the *InDesign Magazine* staff, especially Terri Stone and David Blatner. Special thanks also go out to Barry Anderson and all of the instructors and staff at the Adobe CS Conference.

Thanks also to Photospin.com for allowing me to use their images in this book.

And of course, thanks to Adobe for making such great software to write about.

About the Author

Ted LoCascio is a professional graphic designer and an expert in Photoshop, Photoshop Elements, InDesign, Illustrator, and QuarkXPress. He served as senior designer at KW Media and the National Association of Photoshop Professionals (NAPP) for several years, and has created layouts and designs for many successful software training books, videos, and magazines.

Ted is the author of *InDesign CS2 at Your Fingertips, The InDesign Effects Book,* and *Combining Images with Photoshop Elements.* He has contributed articles to *Photoshop User* magazine, *InDesign Magazine*, and Creativepro.com, and has taught at Photoshop World. Ted is also the video author of *InDesign CS2 Essential Training, Font Management, Illustrator CS2 Creative Techniques, Creative Suite 2 Integration: Print Project Workflow, Getting Started with Quark Interactive Designer,* and *Bridge and Version Cue CS3 Essential Training*—all available at Lynda.com. And he teaches a digital graphics course at St. Petersburg College in Seminole, Florida.

A graphic designer for more than 10 years, Ted's designs and illustrations have been featured in several national newsstand and trade magazines, such as *Photoshop User, Mac Design Magazine,* Nikon's *Capture User, Great Output, AAA Going Places,* and *Florida Trend.* As a professional designer, he has used Adobe software to create layouts for magazines, books, and various advertising and marketing materials, including brochures, product packaging, posters and signs, and interactive PDFs.

A Chicago native (born a hopeless Cubs fan) and Columbia College alumnus, Ted relocated to the Tampa Bay area in 1994. He currently resides in Tarpon Springs, Florida, with his wife, Jill, and their son, Enzo.

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Introduction

For a long time now, Photoshop has reigned as the premier image-editing application for print designers and production artists. In fact, those of us in the print and publishing fields have become so dependent on Photoshop that it's hard to imagine life without it. In the early days of Photoshop, it was considered primarily a tool for graphic designers (ah…the good old days). But with the advent of digital photography, and the development of web and multimedia design, Photoshop's demographic has widened considerably over the years. Nowadays, Photoshop is used not only by print designers, but also by web and multimedia designers, digital photographers, videographers, and professionals in fields from medicine to law enforcement. Our old friend Photoshop sure has come a long way.

So where does that leave print designers? Are we not important anymore? Has Photoshop turned its back on us in favor of other forms of digital media? Well, judging by the change in Photoshop training over the years, you might think so. I can remember a time not so long ago when every Photoshop book on the Barnes & Noble shelf was for print designers (sigh). Now it's hard to even find one Photoshop book that was written specifically for you, the print designer.

That's where this book comes into play. I haven't forgotten about you, because I'm one of you. And despite evidence to the contrary, Photoshop hasn't forgotten about you either. In fact, Photoshop CS3 contains a multitude of new features and improvements that can greatly enhance your print production workflow, including a new Curves dialog box, a new Black And White adjustment feature, and editable filters known as *smart filters* (just to name a few).

This book focuses solely on the various Photoshop features that are used on a daily basis in print design and production. Unlike other Photoshop books that attempt to reach every available demographic (which is virtually impossible anymore, considering the depth of the application), this book was written for you and you alone. I purposely did not include a web design chapter or any digital photography tips. My intent was for this book to become your print design companion. The chapters within should serve as a reliable resource that you can refer to again and again for answers to all your print design questions—and you won't have to wade through pages and pages of unrelated (and unwanted) material. My hopes are that you will come to rely on this resource almost as much as you do on Photoshop.

Who Should Read This Book

As the title implies, this book is intended for designers seeking to master their print graphic editing skills and expand their knowledge of what is required for high-resolution output. These designers fall into three basic groups:

- **Mid-level print designers** who have experience with Photoshop, but have not yet seriously explored the application's full capabilities.

- **Experienced designers** who are looking to expand their knowledge of Photoshop and improve their workflow. These readers can expect to be quite familiar with the concepts covered in this book, and the chapter lessons can provide them with new ways to work in a fast-paced production environment.
- **Highly motivated students** who might be new to both Photoshop and the field of print design and production. These are the people who will be picking the bones of this book. The intent is to supply these readers with all they need to use Photoshop efficiently for print design and production.

There are several ways you can use this book. The most straightforward (and demanding) is to start at the beginning and follow all the steps to mastering Photoshop CS3 for print design and production. Alternatively, you can skip around from chapter to chapter and follow only the steps for the individual chapters. For this, I have included project files on the accompanying CD, where you can find the appropriate image files for the lessons in each chapter and work through the steps.

The *Mastering* Series

The *Mastering* series from Sybex provides outstanding instruction for readers with intermediate and advanced skills, in the form of top-notch training and development for those already working in their field and clear, serious education for those aspiring to become pros. Every *Mastering* book features the following:

- The Sybex "by professionals for professionals" commitment. *Mastering* authors are themselves practitioners, with plenty of credentials in their areas of specialty.
- A practical perspective for a reader who already knows the basics—someone who needs solutions, not a primer.
- Real World Scenarios, ranging from case studies to interviews, that show how the tool, technique, or knowledge presented is applied in actual practice.
- Skill-based instruction, with chapters organized around real tasks rather than abstract concepts or subjects.
- Self-review test "Master It" problems and questions, so you can be certain you're equipped to do the job right.

What Is Covered in This Book

Mastering Photoshop CS3 for Print Design and Production is organized to provide you with easy answers to all your image-editing print design questions. Here is a brief description of what each chapter covers:

Chapter 1: Getting Started shows you how to set up your preferences, arrange your workspace, and choose the proper color settings for print design and production. This chapter also includes a "What's New in CS3" section as well as a refresher on image resolution for print.

Chapter 2: Making Good Selections explores *all* of the Photoshop selection tools, making it much easier for you to identify which ones are best to use for the selection task at hand.

Chapter 3: Working with Brushes explains how to use Photoshop's brushes, brush presets, and the detailed brush engine in a typical day-to-day print/production environment.

Chapter 4: Working with Color shows you how to "take control" of your color by explaining how to select, replace, and enhance color in your images. This chapter also shows you how to add color to grayscale images, or—if your design calls for it—how to remove color from your images and work exclusively in black-and-white.

Chapter 5: Tonal and Color Corrections sets you on the right path and shows you the best tools and methods to use for making tonal and color corrections to print images in Photoshop CS3.

Chapter 6: Retouching and Enhancing for Print explains how to apply local retouching adjustments with final print output in mind, including the covering up or removal of elements in an image, or the more subtle alteration or de-emphasizing of specific image areas.

Chapter 7: Combining Image Layers shows you how to use layer opacity controls, layer blend modes, layer masks, and clipping masks to create collage graphics for print materials.

Chapter 8: Layer Styles and Filter Effects explores how to use styles and filters (including the new "smart" filters) to add some creative flair to your print images.

Chapter 9: Reducing Noise and Sharpening explains how to mitigate or mute unwanted noise, and use sharpening to enhance any patterns, fabrics, or edges present in an image.

Chapter 10: Editing in Camera Raw shows you how to make the most out of editing RAW, TIFF, and JPEG files with the Camera Raw plug-in.

Chapter 11: CS3 Integration takes a look at the various ways that Photoshop can work with the other applications in the Creative Suite 3.

Chapter 12: Automation shows you how to breeze through the grunt work quickly by applying recorded actions and automate commands.

Chapter 13: Saving, Printing, and Output defines print-friendly file formats, such as TIFF, EPS, PSD, and PDF. This chapter also shows you how to print directly from Photoshop to a proofing device or photo-quality ink-jet printer.

The Appendix gathers together all the Master It problems from the chapters and provides a solution for each.

What's on the CD

The companion CD provides image files to accompany many of the tutorials and exercises presented in the book. The images are organized into chapter folders. References to the companion CD images and their respective filenames are included within each chapter.

How to Contact the Author

I welcome feedback from you about this book or about books you'd like to see from me in the future. You can reach me by writing to `ted@tedlocascio.com`. For more information about my work, please visit my website at `tedlocascio.com`.

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Chapter 1

Getting Started

Before you start using Photoshop to edit images for print design/production, there are several things you may want to do, including setting up your preferences, arranging your workspace, and choosing the proper color settings. It's also important to have a firm understanding of image resolution. The more you know about image resolution, the easier it will be for you to size your images properly for high-quality output.

This first chapter can help get you up and running with Photoshop CS3. Along the way, you'll also learn about the new features in CS3 that matter most to print designers.

In this chapter, you will learn to:

- Set up your preferences for print design/production
- Create and save a print design/production workspace
- Customize menus and keyboard shortcuts
- Choose the proper color settings for a print production workflow
- Save images at the proper print resolution

What's New in CS3

There's a lot for print designers and production artists to be excited about in Photoshop CS3. Adobe has added several new features that can greatly enhance your print/production workflow. Here's a quick rundown of some of the best new features for print designers.

New Interface

The new CS3 interface is more flexible than any other image-editing interface on the market. As a designer, you'll be happy to know that your precious screen real estate will no longer be eaten up by palettes. In fact, it's never been easier to collapse or dock palettes, while still maintaining quick access to all the tools you need.

Single-Column Toolbar By default, the Tools palette now appears in a single-column format. When docked on the side of your screen, it expands your work area, allowing more room for you to edit your print images.

FIGURE 1.1
The Tools palette now defaults to a single column.

Side Palette Well The palette well that was previously available in the Options palette in CS2 has now been replaced with new resizable side wells located on the right- and left-hand sides of your screen. You can use these wells to store individual palettes, docked palette groups, or stacked palette windows. While docked in the side wells, palettes can be minimized so each is represented by an icon, with or without a short identifying label (Figure 1.2).

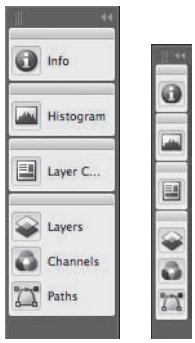


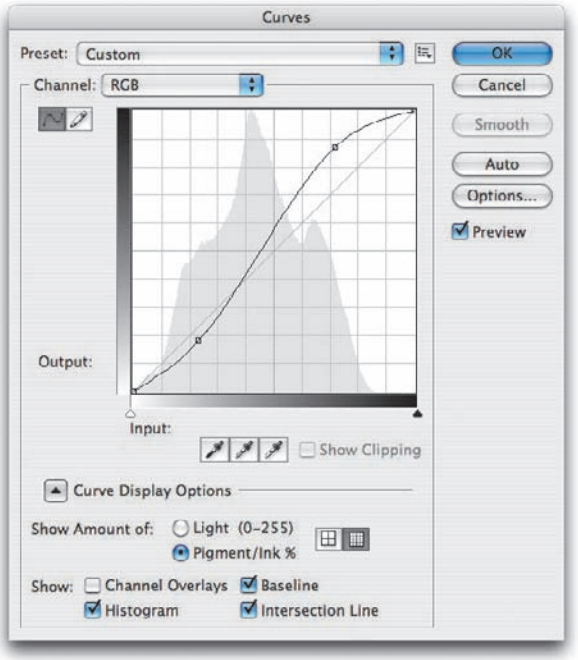
FIGURE 1.2
Palettes minimized into the side wells are represented by (left) a labeled icon or (right) just their icon.

For more on the new CS3 interface, refer to the "Setting Up a Workspace for Print Design/Production" section later in this chapter.

Enhanced Curves Dialog Box

The Curves dialog box (Figure 1.3) contains several new display options. At the bottom of the dialog, click the down-facing arrow next to Curve Display Options to reveal these new settings.

FIGURE 1.3
The CS3 Curves dialog



Show Amount Of Choose whether to display the curves adjustment in Pigment/Ink percentages (recommended for print designers) or Light (0-255).

Channel Overlays Enabling this option displays a separate colored curve for each color channel while you are editing the composite curve.

Histogram One of the most useful changes to the Curves dialog is the ability to now display an image's histogram in gray behind the curve and the grid.

Baseline You can now display the original diagonal line in gray behind the curve. This allows you to compare your curve adjustments to the original line, and to determine how much of an adjustment you've made.

Intersection Line This option allows you to display an intersection line over the grid as you move a selected point on the curve. This can help you make more-precise movements, especially when the grid is set to detailed display.

For more on the CS3 Curves dialog, see Chapter 5, "Tonal and Color Correction."

Smarter Smart Objects

Adobe added more-flexible functionality to "smart" objects in Photoshop CS3, including the ability to apply *smart filters*. You can also open an image as a smart object directly from the File menu.

Open As Smart Object The new Open As Smart Object command under the File menu allows you to create a new document containing the source file as a placed smart object. Photoshop applies the same dimensions to the smart object as what is contained in the source file.

Smart Filters With Photoshop CS3, any of the default filters that are installed with the application (*not* any additional third-party filters that are installed later) are treated as "live" effects when applied to smart objects. This means that you can now preserve the ability to edit most filters (excluding Liquify), as well as Shadows/Highlights adjustments, that are applied to smart objects. These "smart filters" behave very much like adjustment layers (Figure 1.4), allowing you to alter settings any time after the effect is applied, without losing pixel data or compromising image quality.

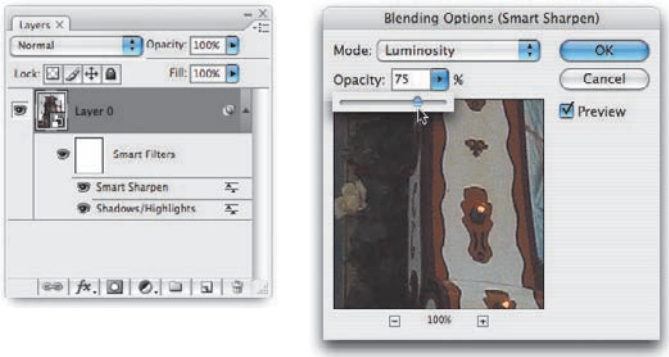


FIGURE 1.4
Filters on smart objects now behave like editable adjustment layers.

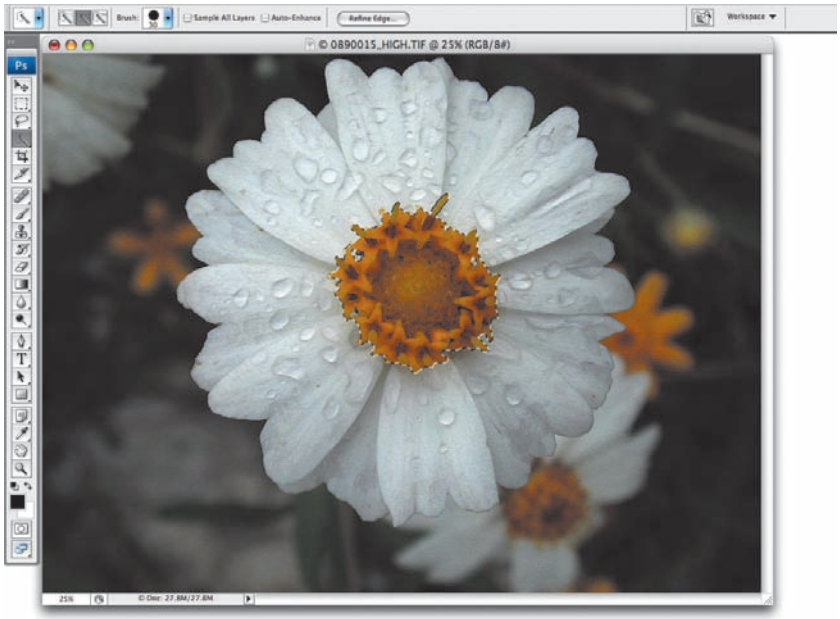
Each smart filter also contains its own blend settings that allow you to control how the filters interact with each other. By double-clicking the icon to the far right of the smart filter layer, you can access the Blending Options dialog box, where you can apply preferred transparency and blend mode settings to the filter.

For more on "smart filters," see Chapter 8, "Layer Styles and Filter Effects."

Quick Selection Tool

The new Quick Selection tool is great for editing high-resolution images in a fast-paced workflow. It allows you to make "magic" selections by using a brush (Figure 1.5). This means that you can make quick selections without having to trace the image. As you paint inside the portion of the image you want to select, the tool recognizes areas of high contrast and selects them for you. It behaves a lot like the Magic Wand tool, only without having to apply any Tolerance settings.

FIGURE 1.5
The Quick Selection tool lets you select with brush-like strokes.

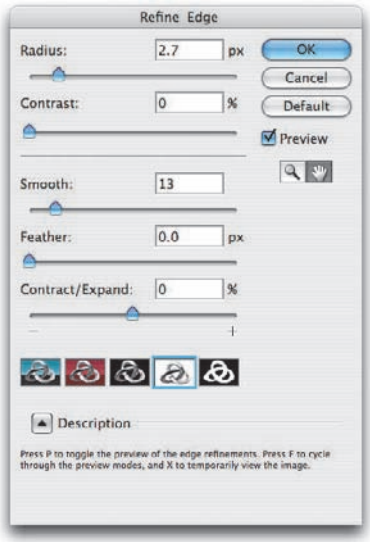


For more on the Quick Selection tool, see Chapter 2, "Making Good Selections."

Refine Edge Dialog Box

You can now adjust a selection path by using the Refine Edge dialog box (Figure 1.6). This makes it an excellent tool for cleaning up those "magic" selections that can often give you less-than-predictable results. To use Refine Edge, click the Refine Edge button in the Options palette to access the dialog, or choose Select ➢ Refine Edge.

FIGURE 1.6
The Refine Edge dialog



The Refine Edge dialog contains the following adjustment options:

Radius improves the selection edge in areas with soft transitions or fine details.

Contrast makes soft edges crisp and removes fuzzy edges along the selection edge. It also removes artifacts that are created by increasing the Radius setting.

Smooth reduces any "hills and valleys" in the selection and creates a smoother outline.

Feather adds a soft-edged transition between the selection edge and the surrounding pixels. Larger values create softer transitions.

Contract/Expand expands or contracts the boundaries of the selection.

At the bottom of the dialog, you can choose a method for previewing Refine Edge adjustments. Options include Standard, Quick Mask, On Black, On White, and Mask.

For more on the Refine Edge Dialog Box, see Chapter 2, "Making Good Selections."

Preferences for Print Designers

Photoshop contains many preferences that allow you to customize the way you use the application. You can set these preferences to help improve your day-to-day print design and production workflow. After you familiarize yourself with them, you'll soon discover that many of them are helpful time-savers, while others are simply a matter of, well…*preference!* This section is designed to help you identify which preferences matter most to print designers.

You can access the Preferences dialog box under the Photoshop menu (Mac) or the Edit menu (Windows). Preferences contain various options for file handling, system performance, transparency, type, and more. Let's take a look at the controls in each preference panel that matter most to your print design/production workflow.

A New Dialog

The Preferences dialog box has been slightly revised for CS3. In addition to being able to choose a specific preference panel directly from the Photoshop (Mac) or Edit (Windows) menu, you can now also choose from a directory located within the dialog itself (see Figure 1.7). Click one of the listings on the left to open a specific panel and then choose your preferred settings. You can also scroll through these panels by clicking the Next and Prev buttons, or by pressing ⌘/Ctrl+1 for the first screen, ⌘/Ctrl+2 for the second screen, and so on all the way up to ⌘/Ctrl+9.

As soon as you click OK, your new settings are implemented and will remain the default until you decide to change them. You can also restore the Photoshop default preferences by pressing and holding Shift+Option+⌘ or Shift+Alt+Ctrl at application launch until the Delete Settings dialog box appears; click Yes to reset.

General

With the exception of the History States field being relocated to the Performance panel, there's nothing new in the General preference panel for CS3 (shown back in Figure 1.7). However, there are several options here that are worth noting when using Photoshop for print design and production.

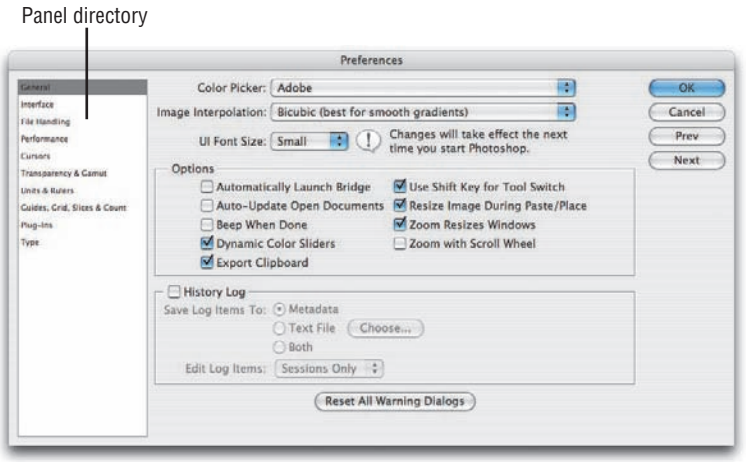


FIGURE 1.7
The CS3 Preferences dialog box

Automatically Launch Bridge The Adobe Bridge file browser application is a useful tool for managing images on your hard drive. It's also a great tool for previewing images, labeling them, and opening them directly in Photoshop. You can also access Camera Raw from right inside the Bridge application (see "Utilizing Adobe Bridge with Photoshop" in Chapter 11, "CS3 Integration"). If you'd like, you can save yourself a step by enabling this option and automatically launching Bridge any time you start up Photoshop.

Resize Image During Paste/Place Enabling this preference can save you a step when pasting or placing large images into a layered document. With this preference enabled, Photoshop automatically resizes images to fit the target image window.

Zoom Resizes Windows This option allows you to resize the image window along with the image any time you apply a zoom command. Disabling this option allows you to zoom in on an image in a static window, which can cause it to be cropped off at higher zoom levels. Generally, you'll want to see as much of your image as possible onscreen while editing, so it makes sense to keep this preference turned on.

Zoom With Scroll Wheel This option allows you to zoom in and out of an image by using the scroll wheel on a multibutton mouse. If your mouse has a scroll wheel, I recommend enabling this preference, because it can help you navigate in and out of your images quickly as you edit.

Interface

Preferences that are specific to the interface's appearance and behavior have been moved to the new Interface panel (Figure 1.8).

Use Grayscale Toolbar Icon CS3 also gives you the option to display the Photoshop icon at the top of the Tools palette in gray rather than in color (Figure 1.9). If you find the color icon particularly distracting, you can change its color to gray by enabling this preference.

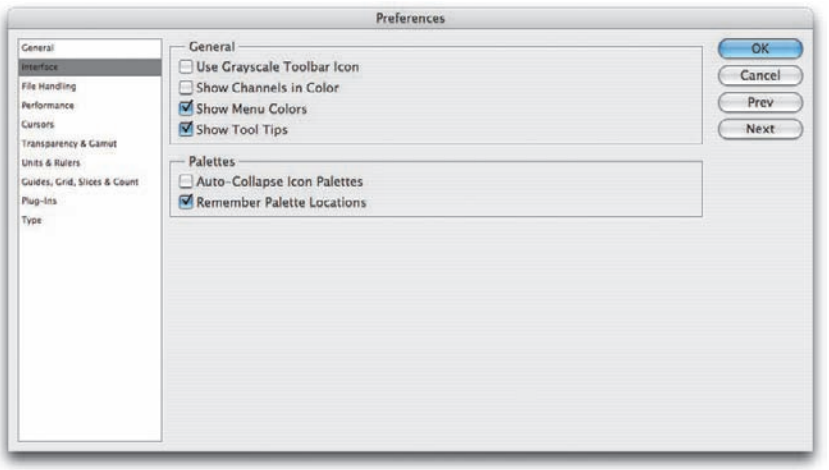


FIGURE 1.8
The Interface preferences panel

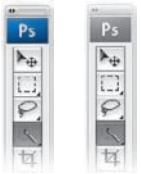


FIGURE 1.9
You can have a color Photoshop icon or a monochrome one.

Show Channels In Color Enable this option if you'd like the individual color channels to be displayed in their respective colors rather than the default gray. With this option enabled, each individual selected channel is displayed in color in the image window as well as in the Channels palette (Figure 1.10). Generally, when viewing images per channel, you are looking for detail that is available in each channel. Viewing individual channels in their respective colors makes this extremely difficult; therefore, I usually keep this preference turned off.

Show Menu Colors Photoshop allows you to edit the way menus are displayed in the interface (see "Customizing Menus and Keyboard Shortcuts" later in this chapter). When chosen from the Edit Menus dialog box, a task-specific preset option highlights specific menu commands with a chosen color. You can also add your own color menu items and save them in a custom set. Although the color labels can be helpful to new Photoshop users, experienced users may find them distracting. Disabling this option hides all menu colors.

Show Tool Tips Enable this option to allow Photoshop to display tool tip descriptions when hovering over tools and controls. Advanced users may want to disable this preference, because tool tips can sometimes become very distracting.

Auto-Collapse Icon Palettes By enabling this option, any expanded palettes that are docked in the side wells are reduced to icon display after you click anywhere else in the interface. If preserving screen space is your number one priority, keep this preference turned on. I personally like to keep certain palettes open all the time, such as the Info, Histogram, and Layers palettes; therefore, I usually disable this preference. I prefer to keep all three palettes docked and to minimize them manually to icons only when necessary.

Remember Palette Locations If you keep this option turned on, Photoshop will preserve your last-used palette arrangement whenever you reopen the application. It's a good idea to keep this preference enabled, just in case you've modified your workspace but have not yet saved it.

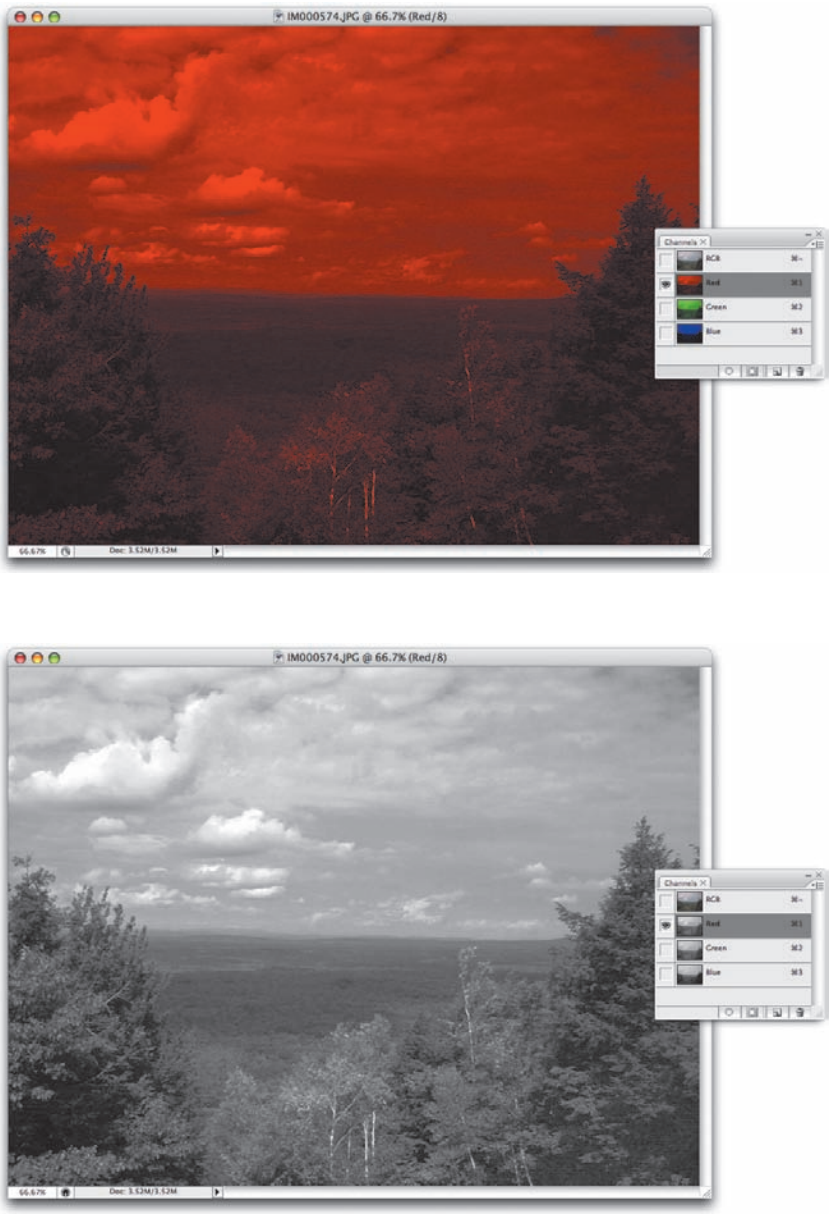
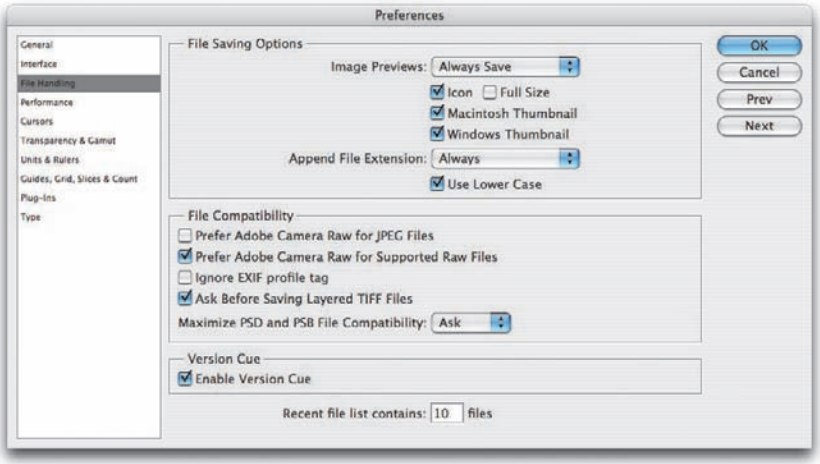


FIGURE 1.10
Viewing the Red channel in color and in gray

File Handling

The File Handling preference panel (Figure 1.11) contains options for file saving and compatibility. If you have the entire Creative Suite installed, including Adobe's Version Cue application, this panel also offers you the option to enable Version Cue File Management.

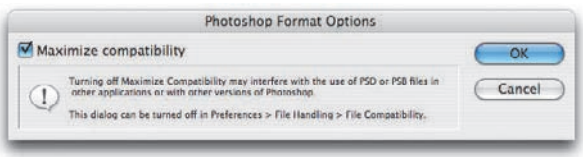
FIGURE 1.11
The File Handling preferences panel



Ask Before Saving Layered TIFF Files Photoshop allows you to save TIFF files containing multiple layers. In fact, you may not realize it, but TIFFs can store anything that native Photoshop PSD files can. With this option enabled (which it is by default), Photoshop alerts you by displaying a warning dialog box every time you save a layered TIFF. This dialog gives you the option to save the file with layers or flatten them (as in a traditional TIFF). If you prefer to work with layered TIFFs rather than PSDs in your workflow, you may want to turn this option off; otherwise, the warning dialog will appear every time you press ⌘/Ctrl+S.

Maximize PSD and PSB File Compatibility This preference gives you the option to include data in saved PSD and PSB files that can improve compatibility with other applications and with earlier versions of Photoshop. Doing so creates both a flattened and a layered version of your file, and adds a considerable amount to the file size. If your workflow requires you to open PSD or PSB files in other applications, such as old versions of Macromedia FreeHand, which requires a flattened version, choose Always from the list. By choosing Ask (the default option), Photoshop displays a warning dialog box every time you save a PSD or PSB (see Figure 1.12). To disable the maximize option (and the warning dialog), choose Never from the list.

FIGURE 1.12
The Maximize Compatibility warning dialog box



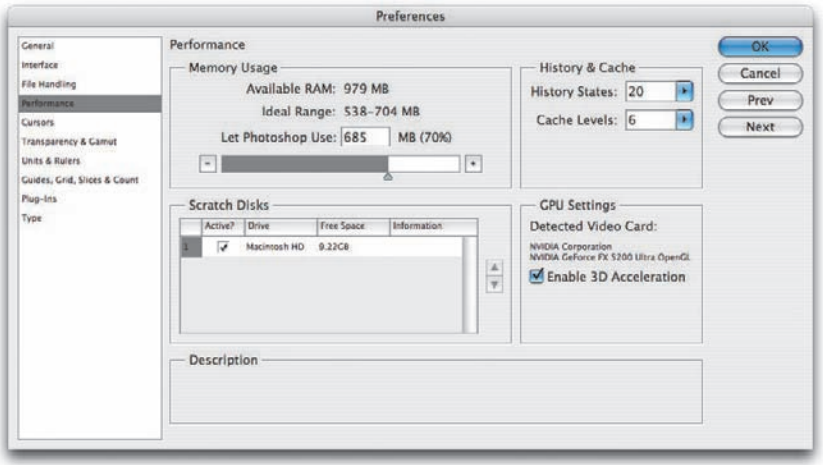
Enable Version Cue Version Cue allows you to create and save alternate versions of an image—and even better, it embeds all of the information into a single file. With Version Cue installed and this preference enabled, you can access these versions from other applications in

the suite, including InDesign and Bridge. This type of workflow can prove to be very helpful when working with picky, "high-maintenance" clients who can never seem to make enough changes or swap out enough images in your layouts and designs (see "Version Cue Versions and Alternates" in Chapter 11).

Performance

The Performance preference panel (Figure 1.13) is new to Photoshop CS3. It combines the Scratch Disk options from the CS2 Plug-Ins & Scratch Disk panel with all of the options found in the CS2 Memory And Image Cache panel. It is also the only preference panel that contains a Description area at the bottom. For a brief explanation of what each option does, hover the mouse cursor over any one of them in the panel and refer to the Description area.

FIGURE 1.13
The Performance preferences panel



Memory Usage This preference allows you to allocate a specific percentage of your system's available RAM to Photoshop. The natural tendency for designers is to overallocate RAM to Photoshop, which is not necessary. For your average Mac or Windows system (1GB or less of RAM installed), start out by setting the slider to 50%. If you have a large amount of RAM installed (at least 3GB), try increasing the percentage. You'll know you've set it too high if the hard disk starts to make noise every time you launch another application (Windows Vista or XP), or if you see the dreaded "spinning beach ball" (Mac OS X).

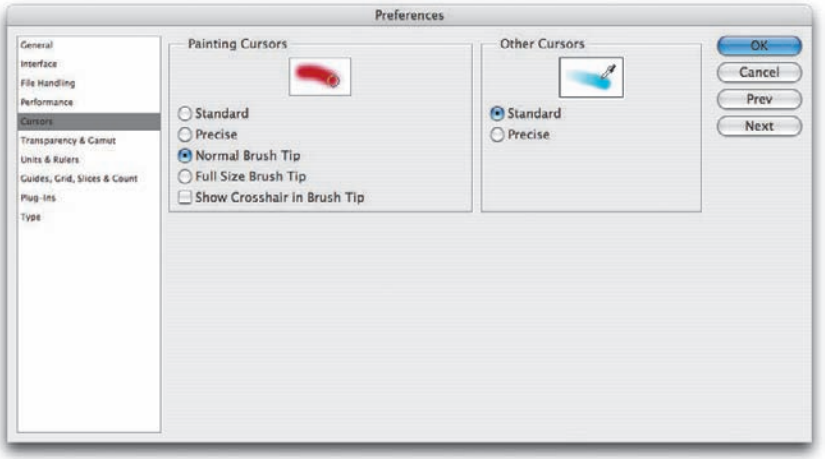
History & Cache The History States preference used to be located in the CS2 General panel, but is now combined with the Cache Levels setting of the Performance panel. The value entered for History States controls the maximum amount of history states accessible in the History palette. The default setting is 20, but you can allocate as many as 1,000 history states. Increasing the default value allows you to go further back in time when editing your images, but it also eats up a lot of scratch disk space. Running out of scratch disk space can severely slow system performance and bring Photoshop to a screeching halt, leaving you unable to even save your images.

GPU Settings For the first time in Photoshop, image windows are displayed onscreen by using the graphics processing unit (GPU) rather than the central processing unit (CPU), or "processor." . The GPU is a specialized logic chip devoted to rendering 2D or 3D graphics. The GPU is used primarily for 3D applications and video games in order to display lighting effects and object transformations.

Cursors

Photoshop CS3 contains two Cursors preference options (Figure 1.14), both of which apply to Painting Cursors and the Brush tool.

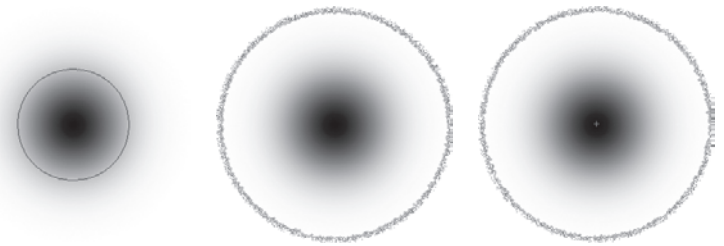
FIGURE 1.14
The Cursors preferences panel



Full Size Brush Tip Enabling this option causes the circle cursor to act as a full-size brush, so that the edge of the cursor is the edge of the brush. This edge indicates the point where the brush stops affecting the image. Normal Brush Tip (the default setting) displays the halfway point at which the color will disappear gradually, particularly when working with soft brushes and pressure sensitivity from a graphics stylus. Some users find the accuracy of the full-size brush tip easier to visualize and work with, whereas others are simply used to working with the normal brush tip and feel no need to switch to full size.

Show Crosshair In Brush Tip Enabling this option causes a small crosshair to appear in the center of the circle brush cursor. This can be especially useful when using the Full Size Brush Tip option (Figure 1.15), because it can help you visualize exactly where the center of the brush is when painting with such a large cursor.

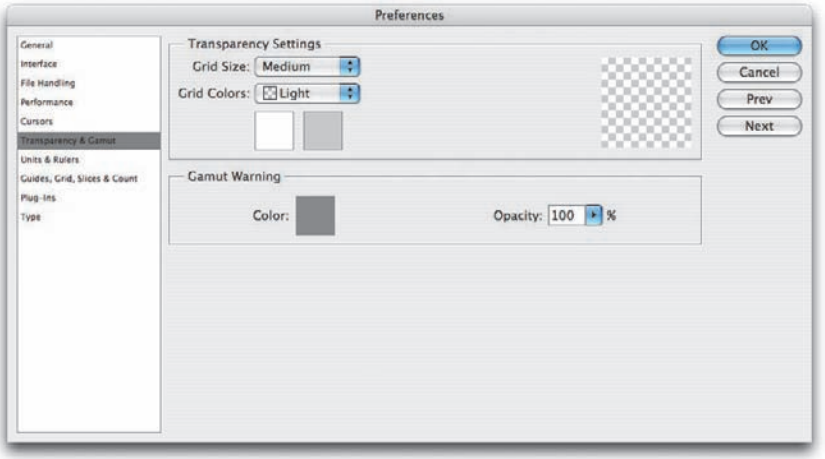
FIGURE 1.15
Choose to show a crosshair in your brush cursor.



Transparency & Gamut

One of the most powerful features of Photoshop is the ability to work with transparent layers. Of the few options available in this preference panel (Figure 1.16), Grid Colors is one you might want to change from time to time, especially when the grid color is conflicting with the image you are editing, making it difficult to identify stray pixels.

FIGURE 1.16
The Transparency & Gamut preferences panel



Grid Colors If the default gray-and-white transparency checkerboard makes it difficult to see the edge of a selection, especially when working with certain tools such as the Background Eraser, you can change it here. Click either color swatch (below the Grid Colors menu) to access the Color Picker. Proceed to change the default colors to something that offers better contrast with your image.

Units & Rulers

Print designers and production artists depend on accurate measurements. That's why Photoshop lets you set the default ruler units (Figure 1.17) to whatever measurement system you're most comfortable working with.

Rulers Photoshop uses inches as the default measurement for displaying document dimensions, but you can change this in the Units & Rulers panel of the Preferences dialog box. Select your preferred unit of measurement from the Rulers menu. Options include inches, centimeters, millimeters, pixels, points, picas, or percentages.

New Document Preset Resolutions You can also set the default settings for new preset print resolution and screen resolution documents. The values entered in these fields are the settings used for print and screen document size presets chosen from the File ➢ New dialog box Preset menu. Although the default suggested print resolution is 300ppi, modern studies prove that an image really needs to be only 220ppi at 100% of its intended print size to produce a high-quality print. If you are creating an image to be displayed on the Web or exclusively onscreen, the image resolution should be set to 72ppi at 100% of its intended viewing size.

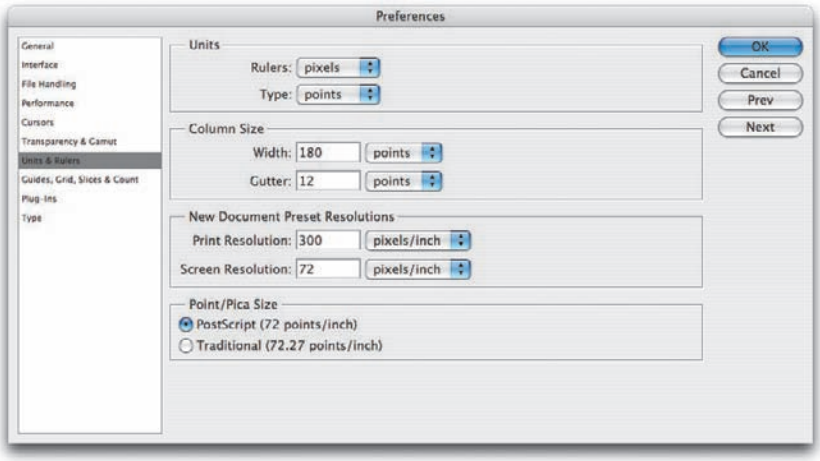


FIGURE 1.17
The Units & Rulers preferences panel

Guides, Grid, Slices, & Count

The Extended version of Photoshop CS3 has added a new Count tool to the Guides, Grid, Slices & Count preference panel (Figure 1.18). This is where you can change the default colors used by these tools. Although the Count tool is really intended for use by medical professionals and not print/production designers, it uses a guide color to count with, and that's why it's included here.

Guides: Color Sometimes the default cyan guides can conflict with the colors of the image you're working with. When this happens, choose a different guide color from the menu. If the color you'd like to apply is not featured in the preset menu list, choose Custom to access Photoshop's Color Picker dialog box and select that color.

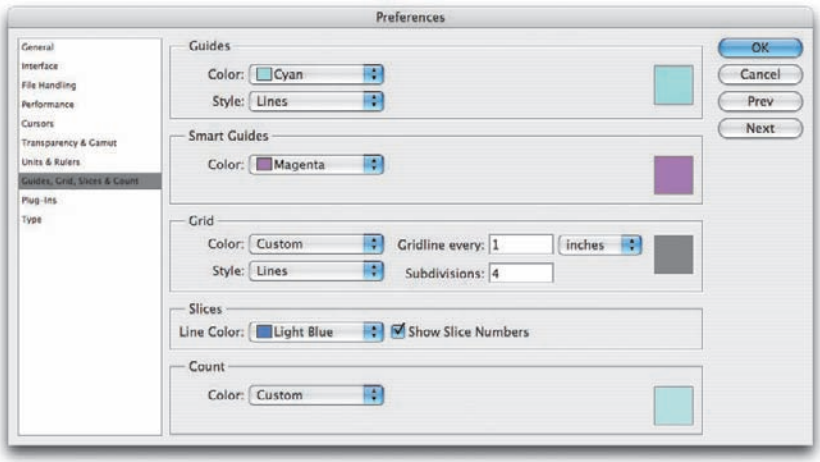
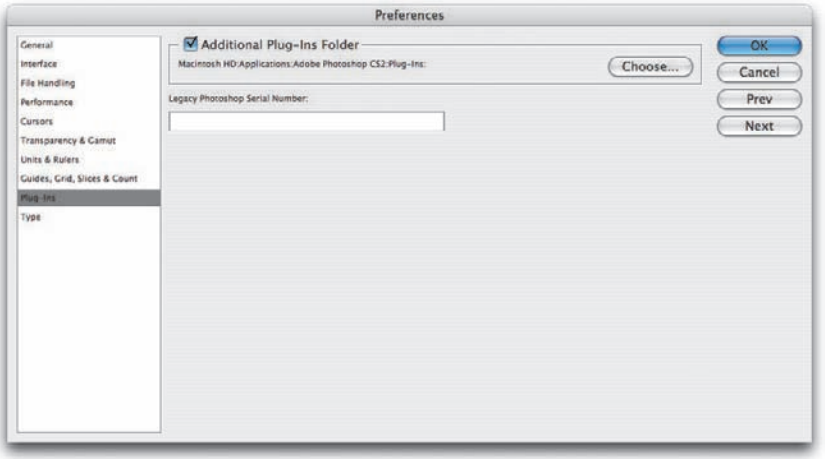


FIGURE 1.18
The Guides, Grid, Slices, & Count preferences panel

Plug-Ins

Plug-Ins now has its very own preference panel in CS3 (Figure 1.19) and no longer has to share with Scratch Disks. Its former roommate has moved to the new Performance panel.

FIGURE 1.19
The Plug-Ins preferences panel



Additional Plug-Ins Folder If you have previous versions of Photoshop on your system and third-party plug-ins installed, you can load the plug-ins into Photoshop CS3 without having to reinstall them. Click the Choose button and navigate to the `Photoshop X/Plug-Ins` folder. If a plug-in requires the serial number of the installed legacy version of Photoshop, enter it in the field below. You can also load compatible third-party plug-ins located in different directories, or in the plug-ins folder of other applications such as Corel Painter.

Type

When designing for print, it is recommended that you set the bulk of your type in a layout application such as Adobe's InDesign or Quark's QuarkXPress. Type always outputs sharper when set in a layout application, or in a vector drawing program such as Adobe Illustrator or FreeHand. Ultimately, Photoshop rasterizes type, or converts it to pixels, which makes it appear overly soft on the printed page—a very undesirable effect. However, there are certain instances when you may need to work with type in Photoshop. For example, you can use Photoshop to create transparent type effects, or use type with Layer Comps to develop a series of initial designs to present to a client. Here are the preferences (Figure 1.20) that matter most when working with type in Photoshop.

Use Smart Quotes You should keep this option enabled so that quotes will always display as typographer's quotes (curled), as opposed to displaying as inch marks (straight).

Enable Missing Glyph Protection This new preference is intended for typography experts who work predominantly with large character set languages and who sometimes run into problems with missing glyph characters. This option (on by default) tells Photoshop to automatically substitute a font if a document containing text encounters a missing glyph. If you're working with large character sets, it's a good idea to keep this new preference turned on.

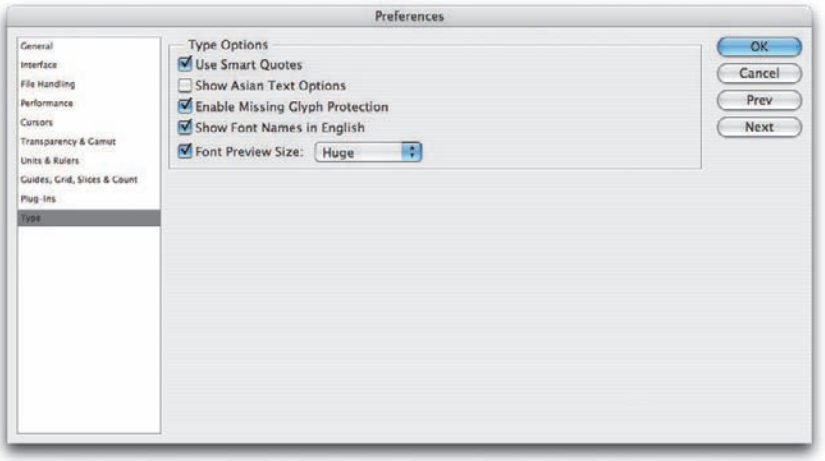


FIGURE 1.20
The Type preferences panel

Font Preview Size Enabling this option allows you to preview fonts at the size you choose in the available font menus. Choose Small, Medium, Large, Extra Large, or Huge. By disabling this option, fonts are displayed at the last chosen size. You must re-enable the preference to change the font preview size. Viewing the fonts at larger sizes can make it a lot easier to identify which ones you'd like to work with. Viewing fonts at smaller sizes preserves more space in the font menu and results in less scrolling.

Setting Up a Workspace for Print Design/Production

Making the most of your screen real estate is important no matter what type of image editing you're doing in Photoshop. Even with a large monitor, or even *dual monitors*, there just never seems to be enough room to work. In this section, you'll take a look at how you can maximize your screen space through good palette management, and then save your favorite workspace environments.

Managing Palettes

To conserve screen space, you can regroup palettes by docking them together. You can also stack palette windows together into a vertical column. Palettes and palette groups can also be collapsed vertically to create more room for you to work. In addition, Photoshop now allows you to dock palettes into resizable side wells on either side of your screen, and even reduce them to icon size.

REGROUPING PALETTES

One really efficient way to save screen space is to regroup your most frequently used palettes together. By doing so, you can essentially combine three or four palettes into one (see Figure 1.21).

To group individual palettes together, simply click the tab of one palette and drag it into another, as shown in Figure 1.22. Hold the mouse button down until a blue outline appears around the palette window that you are dragging into; then release. The palettes become grouped together inside the same window.

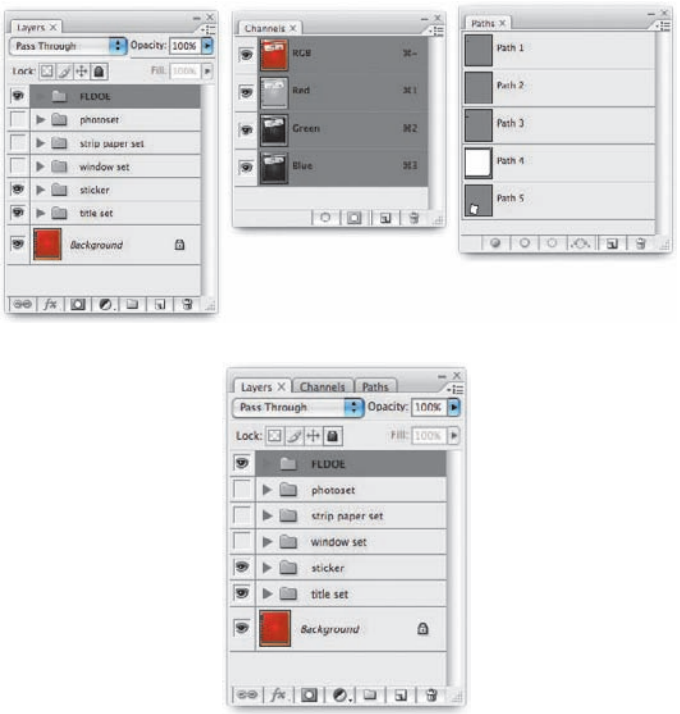


FIGURE 1.21
Keeping a lot of individual palettes open can eat up a lot of your screen (top), but regrouping your most frequently used palettes together creates a lot more room to work (bottom).

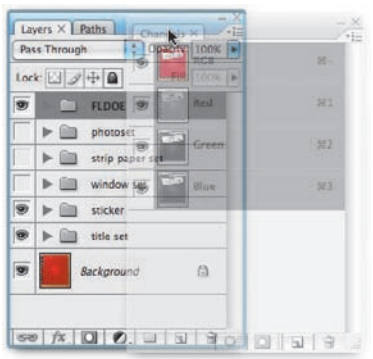


FIGURE 1.22
Drag a palette onto another to group them.

Clicking a grouped palette's tab brings that palette to the front of the group. To ungroup a palette, click the tab, hold the mouse button down, and drag it out of the window. Release the mouse button to place the free-floating palette somewhere else on your screen, or group it into another window or side well.

Collapsing Palettes

Another great way to save screen space is to collapse palette windows. Collapsing palettes hides everything except for the palette tabs (see Figure 1.23). This is the best way to clear your screen.

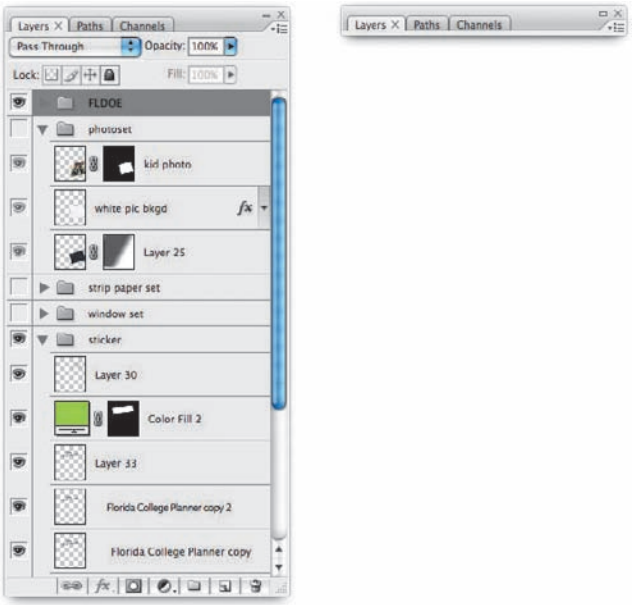


Figure 1.23
Photoshop's palettes can take up a large portion of the screen (left), but collapsing them gives you much more room to work with (right).

Photoshop offers three ways to collapse free-floating palette windows (that is, palettes not placed in the side wells): click the title bar, double-click the palette tab, or click the Collapse Window button in the upper right of the palette (next to the Close button).

Stacking Palettes

One other way that you can save screen space is to stack your palette groups together. Doing so allows you to reposition or collapse all of your palettes at once (see Figure 1.24).

To stack palette windows together, click the tab of one palette, hold the mouse button down, and drag the palette over the bottom edge of another (as shown in Figure 1.25). Release the mouse button when a thick blue line appears at the bottom edge of the window you're docking to. The palette windows become docked together in a vertical column.

Using the Side Palette Well

The palette well that was previously available in the Options palette in CS2 has now been replaced with new resizable side wells located on the right- and left-hand sides of your screen. You can use these wells to store individual palettes, docked palette groups, or stacked palette windows.

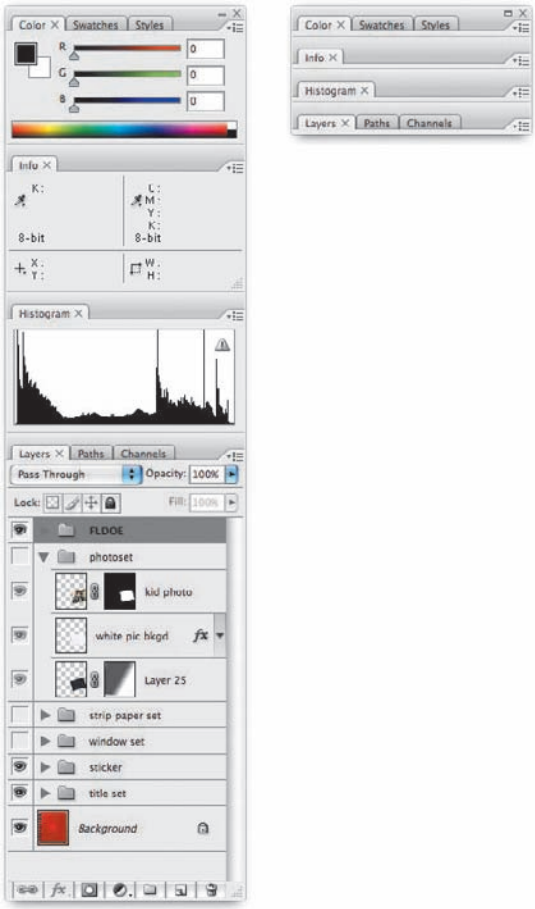


FIGURE 1.24
Palette groups can also eat up a lot of your screen (left), but stacking them together allows you to reposition and collapse them all at once (right).

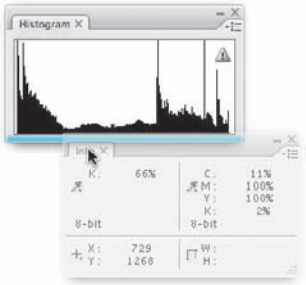


FIGURE 1.25
You can dock palette windows to each other vertically.

To add a palette window to either side well, click the title bar and drag it to either side of your screen. Hold the mouse button down until a vertical line appears in the well, and then release for the palette window to snap into place. Certain palettes docked in the window, such as Layers or Swatches, automatically resize vertically to fill the column. You can also add multiple columns of docked palette windows at a time (Figure 1.26).

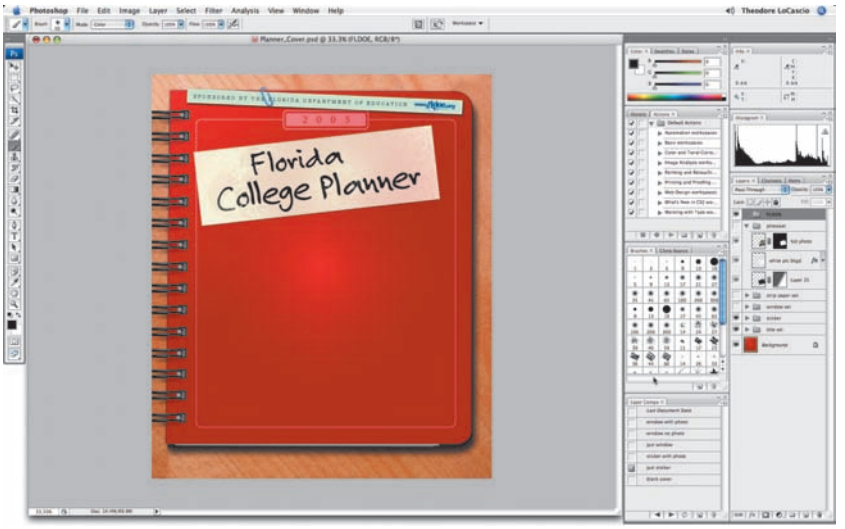


FIGURE 1.26
Multiple side docks on the right side of the screen

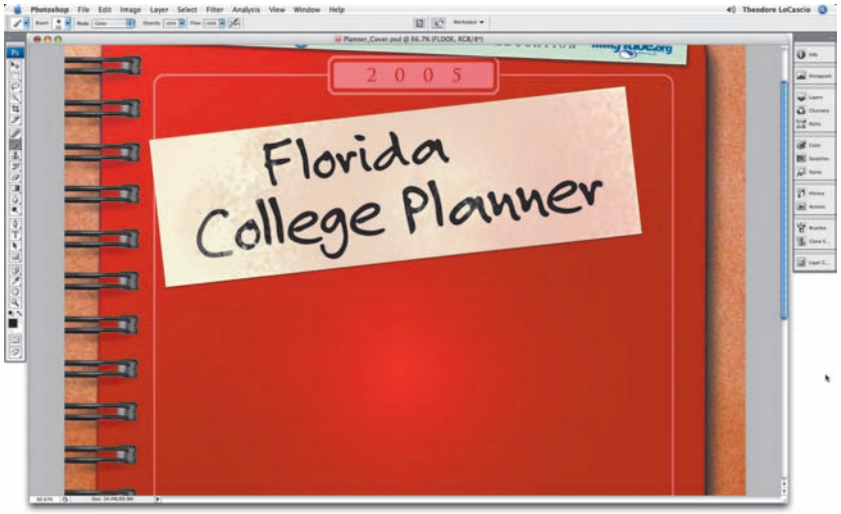
When you click the gray bar above a docked palette column, the palettes are minimized to display small palette icons and palette names (Figure 1.27). You can minimize these even further and display just the icons by clicking the gray area at the top or side of the palette and dragging it in toward the screen.

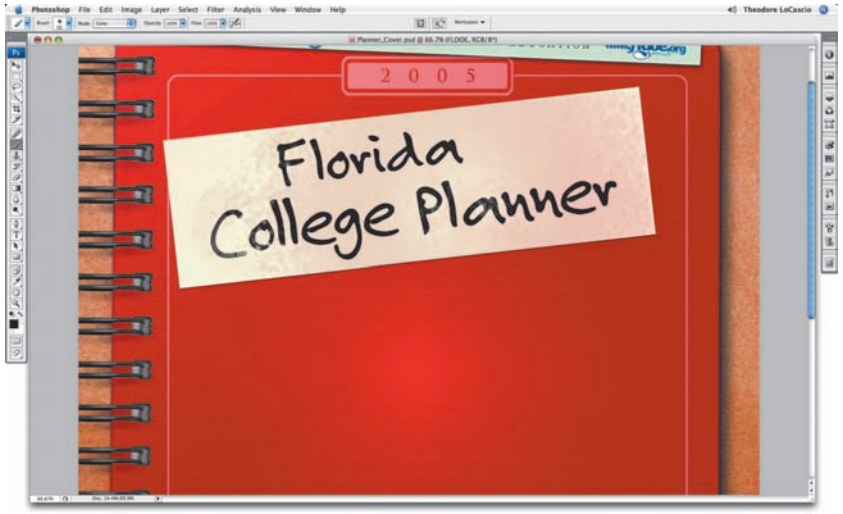
Click once on a palette icon to expand the window, as in Figure 1.28. The expanded window snaps into position next to the well and can be resized by clicking and dragging the bottom of the palette up or down.

Here are some more helpful tips when working with the side palette wells:

- You can reposition a docked palette vertically in the well, whether expanded or minimized to an icon, by clicking and dragging up or down. When you see a thick blue horizontal line appear, release the mouse button to drop the palette into place.
- When repositioning an expanded palette into a docked icon group, the palette minimizes to an icon and snaps into place.
- You can add more palettes to a docked palette group by dragging them over the icons or the expanded palettes in the well.
- At any time, docked palettes—expanded or minimized—can be undocked and repositioned anywhere on the screen by simply clicking and dragging the icon or palette tab out of the well.

FIGURE 1.27
Icon palettes: top, docked and labeled; bottom, docked





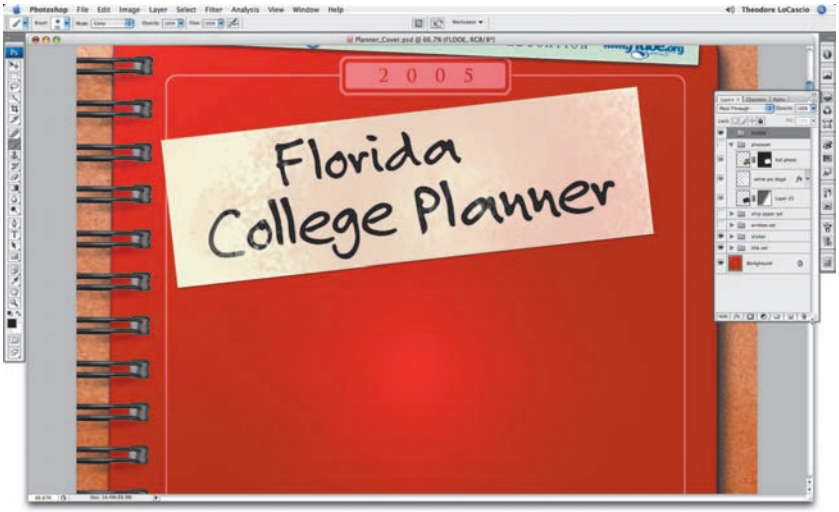


FIGURE 1.28
An expanded icon palette

Saving a Workspace

Photoshop allows you to save your workspace environment so that you don't have to spend time repositioning palettes on the screen every time you launch the application. You can create and save a custom workspace for every type of image-editing work you do. For instance, a production-oriented job might require a totally different set of palettes than a design-oriented one. No problem! Photoshop lets you save a workspace for each.

To save your preferred work environment, choose Window ➢ Workspace ➢ Save Workspace. When the Save Workspace dialog box appears, enter a name for your workspace and click OK. You can now restore your workspace whenever you like by selecting it under the Window ➢ Workspace submenu or from the Workspace drop-down list in the Options palette.

To save changes made to your custom environment, choose Window ➢ Workspace ➢ Save Workspace, and enter the name of the workspace you want to update. Click OK when the dialog box asks whether you want to replace the workspace.

Figure 1.29 shows a production-oriented workspace, with the Info, Histogram, Paths, and Layers palettes made visible, and the Color, Navigator, Swatches, History, and Actions palettes docked nearby.

By contrast, in Figure 1.30 we have a design-oriented workspace, with the Info, Histogram, Layer Comps, and Layers palettes made visible, and the Brushes, Clone Source, Color, and Swatches palettes docked nearby.

Deleting a Workspace

Custom workspaces are such a cool feature, and so easy to use, that you may find yourself saving dozens of them in no time at all. But after a while, you may realize that you really use only a handful of them. No problem. You can always delete a saved workspace by choosing Window ➢ Workspace ➢ Delete Workspace. When the Delete Workspace dialog box appears, select the workspace you want to delete from the list (sorry, you can delete only one at a time). Click Delete, and it's gone forever.

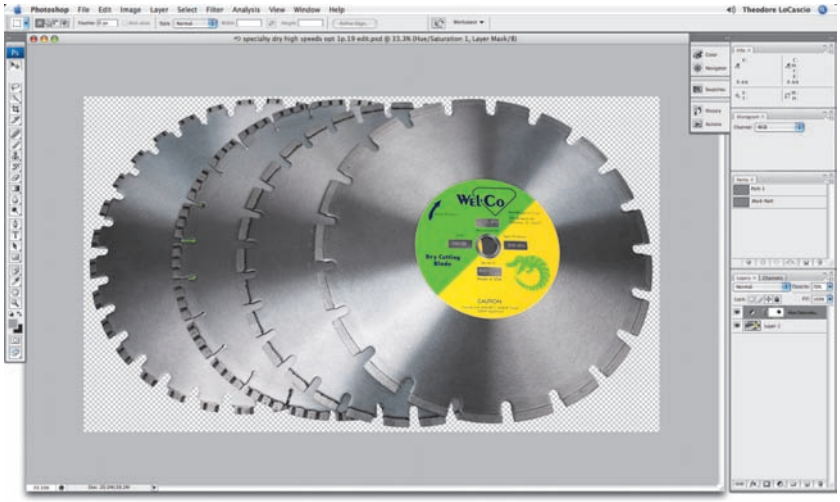


FIGURE 1.29
A production-oriented workspace

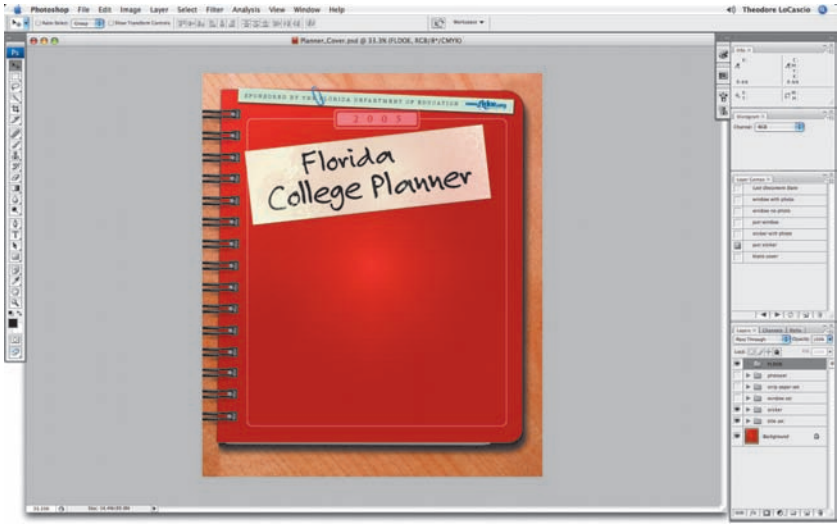


FIGURE 1.30
A design-oriented workspace

RESTORING THE DEFAULT WORKSPACE

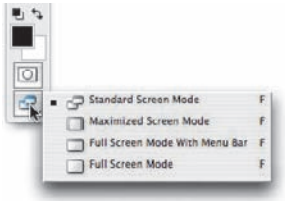
Maybe the default workspace is perfect for your design needs and you just want to return to the application's original palette arrangement. Well, pat yourself on the back for being exceptionally "low-maintenance" and then choose Window ➢ Workspace ➢ [Default]. You can also restore the Default Workspace from the Workspace drop-down list in the Options palette.

Using Screen Modes

By applying good palette management and saving your ideal workspace settings, you can conserve space on your screen. Standard Screen Mode is what you're probably used to working in, but if you truly want to use *the entire screen*, without wasting even the tiniest bit, try using the Full Screen Modes.

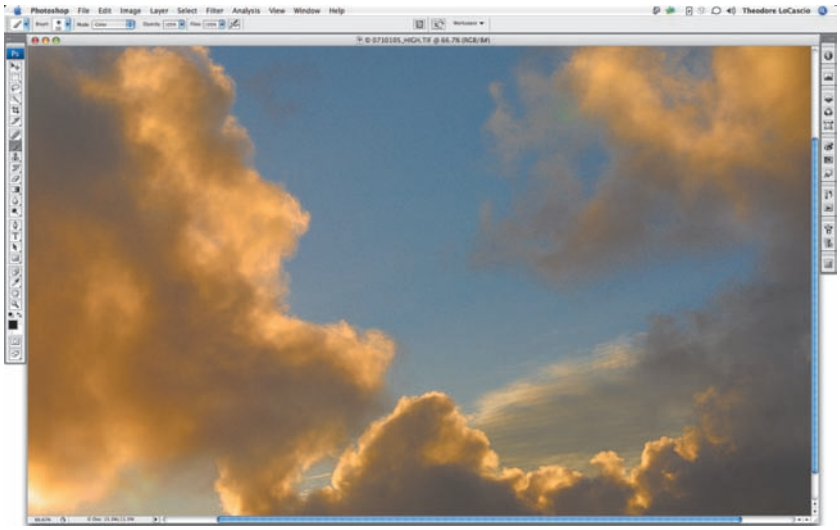
You can apply the different screen modes by clicking the Mode icon at the very bottom of the Tools palette (Figure 1.31) or by pressing the F key.

FIGURE 1.31
Switch screen modes via the icon at the bottom of the Tools palette.



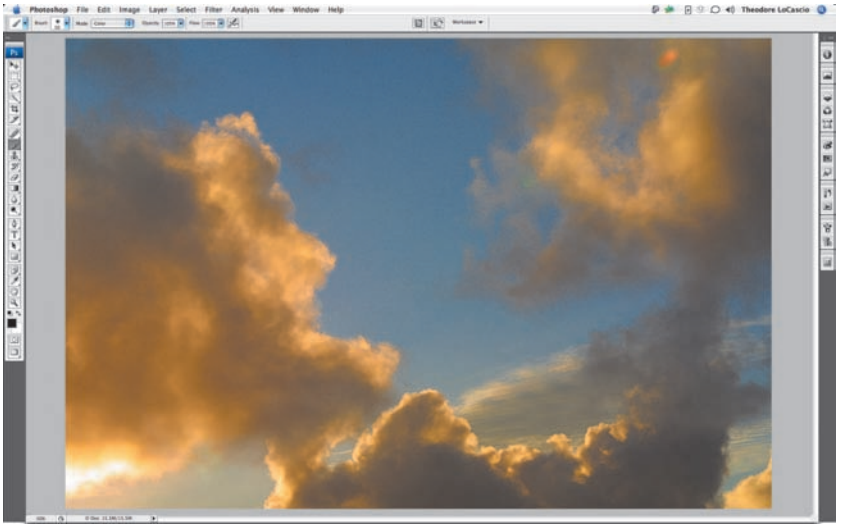
Standard Screen Mode In Standard Screen Mode (the application default), all four sides of the document window are displayed (see Figure 1.32). The name of the document is always shown at the top, and scroll bars appear on the right and bottom sides when the image is too large to fit in the window. When the Tools palette is displayed in double-column format, you can apply Standard Screen mode by clicking the Mode icon on the far left.

FIGURE 1.32
Standard Screen mode



Maximized Screen Mode In Maximized Screen Mode, the document window is maximized to fit within the boundaries of the palette docks, and the title bar is hidden (see Figure 1.33). Scroll bars appear on the right and bottom sides when zoomed in on the image.

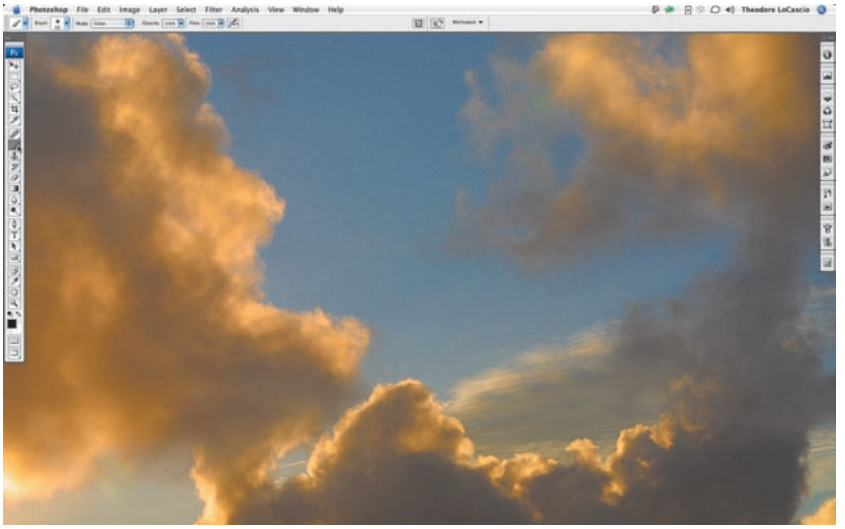
FIGURE 1.33
Maximized screen mode



Full Screen Mode With Menu Bar In Full Screen Mode With Menu Bar, Photoshop hides the document window boundaries and fills the entire screen with the image (see Figure 1.34). Any visible palettes are automatically positioned over the image, while the menu bar is still accessible at the top of the screen. There are no scroll bars in this mode, so if part of the image becomes cropped off by the screen, you must use the Hand tool to navigate around the document. You can access the Hand tool quickly by holding down the spacebar. If you zoom out far enough for the document not to fill the entire screen, Photoshop fills the surrounding areas with gray.

When the Tools palette is displayed in double-column format, you can apply Full Screen Mode With Menu Bar by clicking the middle Mode icon.

FIGURE 1.34
Full Screen Mode With Menu Bar



Full Screen Mode In Full Screen Mode, Photoshop fills the entire screen with the image and hides the menu bar as well as the document window boundaries (see Figure 1.35). To apply menu commands, you must switch back to one of the other two screen modes in order to access the menu bar, or use the keyboard shortcuts (if applicable). If you zoom out far enough for the image not to fill the entire screen, Photoshop fills the surrounding areas with gray.

When the Tools palette is displayed in double-column format, you can apply Full Screen Mode by clicking the Mode icon on the far right.

FIGURE 1.35
Full Screen Mode

This can be a great way to work when editing an image with brush tools. To make even more room on the screen as you edit, press Tab to hide the palettes (see Figure 1.36). You'll be left with nothing but the image displayed across the entire screen.

FIGURE 1.36
Full Screen Mode with palettes hidden

SCREEN MODE SHORTCUTS

If the Tools palette is hidden, you can cycle through the three screen modes by pressing F on your keyboard.

Customizing Menus and Keyboard Shortcuts

Photoshop CS3 is so flexible that it even allows you to hide and show menu commands. Being able to customize your workspace like this ensures that you'll always be working in a comfortable, uncluttered environment. Photoshop also allows you to customize keyboard shortcuts, which can make remembering them a whole lot easier, but can also make life much harder for designers working in a collaborative environment and sharing computers—unless of course, everyone on the design team agrees on using the same new shortcuts.

Editing Menus

Photoshop is an application used by all types of creative professionals—from web designers, to video editors, to forensic experts—and that's just to name a few. Therefore, as a print designer, it's unlikely that you will use all of the menu commands available. More often than not, you'll wind up wading through a lot of unused clutter. If having to do this slows your workflow down, try customizing the interface to display only the menu commands that you really use.

Choose Edit ➢ Menus, and click the Menus tab at the top of the dialog box that appears. Unless you've changed it, the set currently displayed should be Photoshop Defaults (Note: You can choose from various other built-in task specific presets. See the "Workspace Presets" sidebar later in this section). Choose which menu type (application or palette) that you'd like to edit from the Menu For pop-up list. Toggle the triangle next to each menu name to view the various commands (see Figure 1.37).

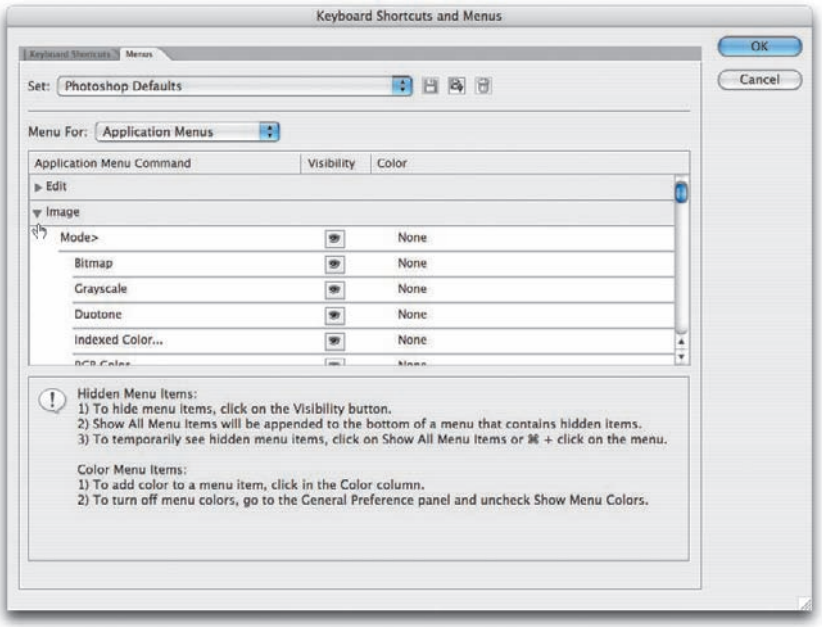


FIGURE 1.37
The Menus tab of the Keyboard Shortcuts and Menus dialog box

You can hide or show menu commands in any of the default sets by clicking in the Visibility column. You can also add or change the highlight colors for the menu commands by clicking in the Color column and choosing a color from the pop-up menu (see Figure 1.38). When you've finished editing the menus, click OK to exit the dialog.

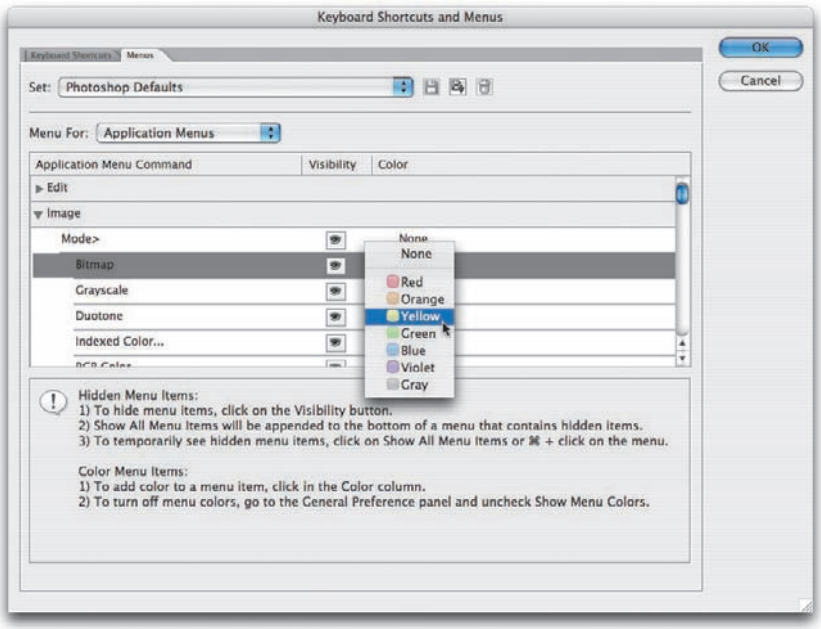


FIGURE 1.38
Click in the Color column and choose a color from the pop-up menu that appears.

Photoshop automatically adds the Show All Menu Items command to the bottom of any menu list containing hidden items (Figure 1.39). Choose this command to see everything that's been hidden. You can also view hidden commands by ⌘/Ctrl+clicking the menu name.

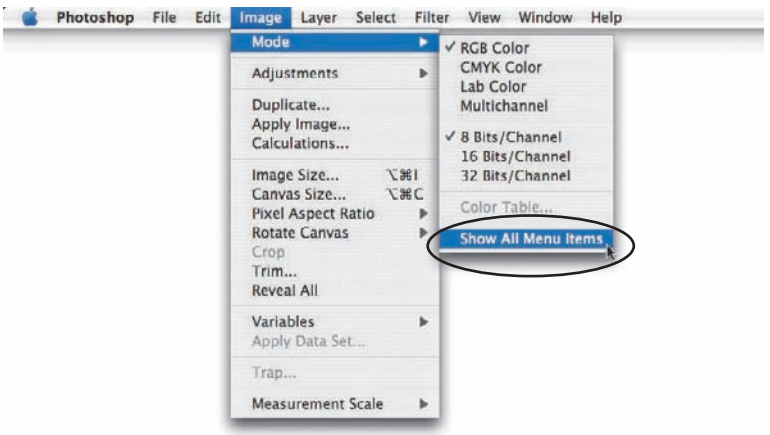
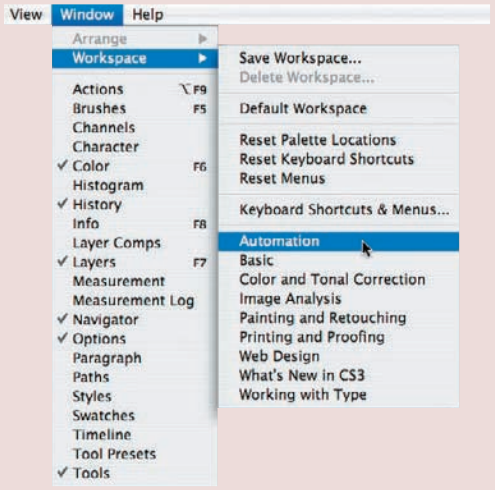


FIGURE 1.39
Some menus have hidden commands that can be displayed.

You can also create and save your own custom sets by clicking the Save button next to the Set drop-down list. When the Save dialog box appears, name the set and click the Save button. Your custom set is added to the Set drop-down list.

Workspace Presets

Photoshop CS3 ships with a number of built-in workspace presets. There are 11 presets already set up for you under the Window ➢ Workspace submenu or from the Workspace drop-down list located on the far left of the Options palette. Each preset applies menu highlights and keyboard shortcuts for a specific editing task in Photoshop (Note: These presets can change the palette arrangement onscreen). To highlight the new features in CS3, choose the What's New In CS3 preset. Note that these are the same presets found in the Set drop-down list in the Keyboard Shortcuts And Menus dialog box.



Editing Keyboard Shortcuts

Photoshop allows you to change any of the keyboard shortcuts in the default set. To do so, choose Edit ➢ Keyboard Shortcuts. Then from the Shortcuts For drop-down list, choose Application Menus, Palette Menus, or Tools. Photoshop displays the chosen shortcuts in a list box underneath the drop-down list (see Figure 1.40).

For the Application Menus and Palette Menus lists, toggle the triangle next to each menu or palette name to view the various commands. Existing shortcuts are displayed in the Shortcut column. If no shortcut is displayed, none is currently assigned to the command.

To change or assign a shortcut, click in the Shortcut column and then type the shortcut. Any conflicting shortcuts will appear in a warning directly below the list box (see Figure 1.41). Click the Accept button to remove the conflicting shortcut (if any) from its former command and apply it to the currently selected command. You can always reapply the original shortcut by clicking the Use Default or Undo buttons.

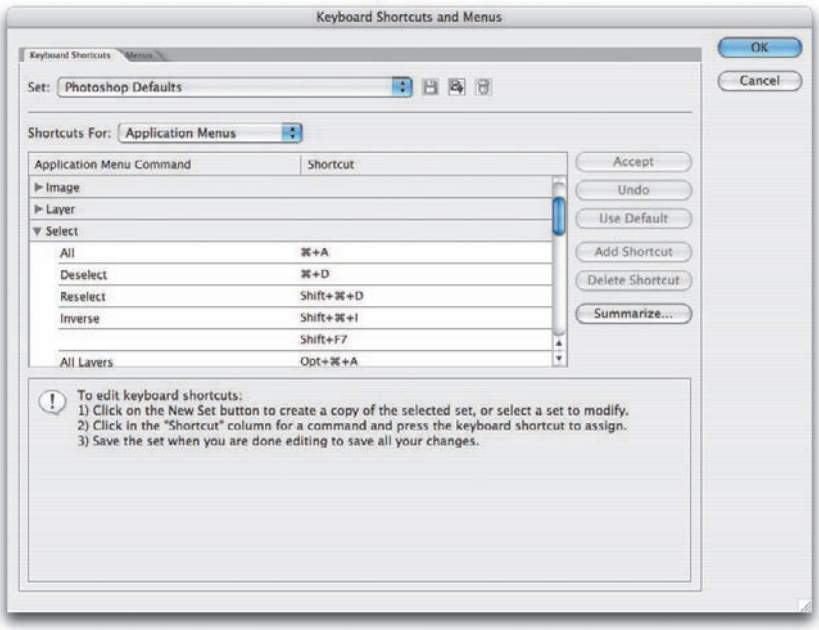


FIGURE 1.40
The Keyboard Shortcuts tab

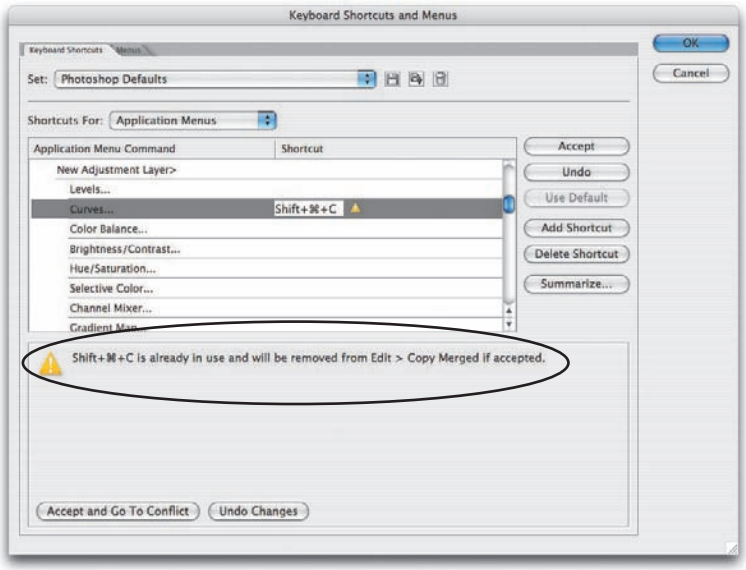


FIGURE 1.41
The Keyboard Shortcuts and Menus dialog box tells you if there is a conflict.

Custom keyboard shortcut sets can be saved by using the same method as when saving custom menu sets.

Color Management: What Color Settings Should I Use?

Often when you are designing, colors can appear one way on your monitor but appear drastically different when printed. Thankfully, Photoshop contains enhanced color management features that can make screen colors come as close as possible to what you'll see in the final printed piece. These color settings can also be synchronized with the other applications in the Creative Suite (such as InDesign and Illustrator) through the Adobe Bridge application.

Color management is intended to ensure that the colors you are viewing onscreen are displaying—as accurately as possible—a true representation of what your photos will look like upon final output. The idea here is to maintain color consistency on every device (print and display) through the use of embedded color profiles.

What's an ICC Color Profile?

As a print designer, I'm sure you've heard the term *ICC color profile*. But what is it? What does it do? Well, different devices, such as scanners, monitors, and digital cameras all display RGB and CMY colors in different shades. An ICC profile is a small file that describes how a device reproduces color. *ICC* stands for *International Color Consortium*, which is the organization that created this file format. Photoshop uses these profiles as a set of instructions in order to display color accurately. ICC profiles are device profiles and are not to be confused with color space profiles, which are applied to images.

The range of color each device can reproduce is referred to as its *gamut*. If a color appears muted, or *out of gamut* on a certain device (such as a printer), this means that the color requires a wider range of RGB or CMY colors than the device can reproduce.

Monitor Calibration

A good way to start out with color management is to first calibrate your monitor. *Calibration* adjusts the output of your monitor to ensure accurate display. This is achieved by fine-tuning the brightness, contrast, and color balance settings.

On the Windows platform, you should take advantage of the visual calibrator that comes with Vista.

Mac OS X users can calibrate by using the Display Calibrator Assistant that comes with OS X (see Figure 1.42). In System Preferences, choose Displays; click Color; then click the Calibrate button. The Assistant will walk you through the process from here.

If you're serious about color, you should consider investing in a *colorimeter*, which is a hardware calibration device. These hardware devices tend to be much more accurate than software calibration, because they do not rely on your eye as the already-mentioned software utilities do. They usually start around $100 and can be purchased from various computer catalogs and websites.

After you've calibrated your monitor, your operating system generates an ICC profile that your operating system can recognize. You can then decide how you'd like to use color space profiles with your images in Photoshop—or if you'd even like to use color management at all (*and I recommend that you do!*). For a more in-depth look at calibration and color management, you might want to check out Tim Grey's book *Color Confidence* (Sybex, second edition 2006).

FIGURE 1.42
The Display Calibrator Assistant in Mac OS X

Color Settings

Because there are so many different monitors and printers available, there is no one specific way to manage color. It's up to you to run some tests on your images and choose the color settings that produce the most accurate and consistent results. This section offers you some guidelines for applying color management in a typical print design/production workflow.

You can choose color management settings from the Color Settings dialog box. To display the dialog, choose Edit ➢ Color Settings, or press Shift+⌘+K / Shift+Ctrl+K (see Figure 1.43).

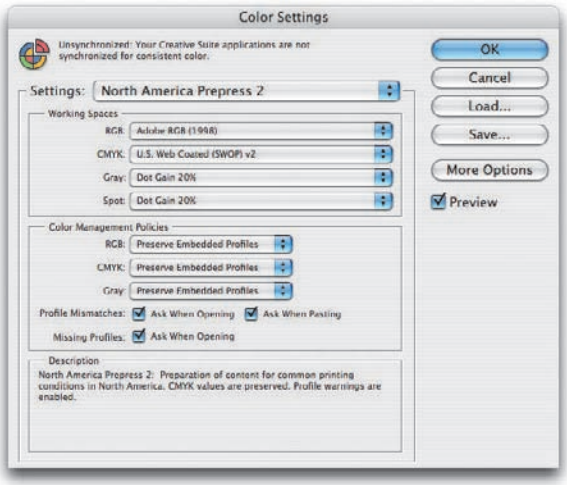


FIGURE 1.43
The Color Settings dialog box

Working Spaces: RGB Most image editing is done in the RGB color workspace. Ideally this workspace includes a balanced amount of RGB, which results in gray. The *working space* refers to the type of RGB used with every new document created in Photoshop. The Working Spaces

RGB drop-down list contains several options to choose from—all of them balanced, with each one containing a different range of color (or gamut).

The best working space choice for editing images intended for output on a commercial printing press is Adobe RGB. A good second choice is ColorMatch RGB, only because it contains a smaller color gamut than Adobe RGB.

Working Spaces: CMYK From this list, select the profile that most accurately describes the printing conditions used to reproduce your image. Choose from one of the following:

- U.S. Sheetfed Coated for glossy brochures
- U.S. Sheetfed Uncoated for dull-finish brochures
- U.S. Web Coated (SWOP) v2 for magazines
- U.S. Web Uncoated for dull-finish publications

Ultimately, you must convert all of your RGB images by using one of these four CMYK profiles before outputting to a commercial printing press. Always keep safe copies of your original working RGB images and apply the final CMYK conversion to a duplicate of the image. The final CMYK image is what you should place in your layout document.

Choosing the conversion option as your CMYK workspace allows you to convert to Working CMYK in the Convert To Profile dialog box (for more on this, see the "Convert to Profile" section of Chapter 15, "Saving, Printing, and Output").

Color Management Policies You have three options for handling RGB, CMYK, and Grayscale images that are newly opened in Photoshop:

Convert To Working RGB converts the newly opened image to the current working space profile if it does not match.

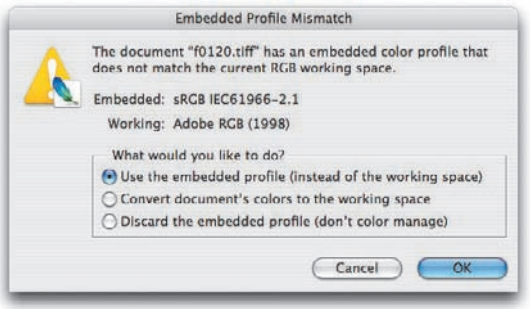
Preserve Embedded Profiles leaves the image alone and does not convert it to the currently assigned working space profile.

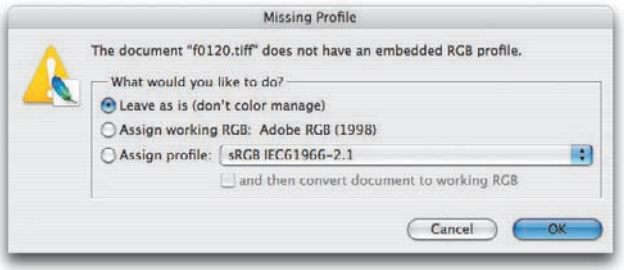
Off disables color management for newly opened and newly created documents that do not match the current working space profile. If a newly opened document contains an embedded profile that matches the working space, that profile is preserved.

For print/production artists, it's best to set all three menus to Preserve Embedded Profiles, especially when working with images provided from outside sources. It's rare, but sometimes photographers will provide images with custom RGB profiles assigned, and when they do, you may not want to convert them to your current workspace. More often than not, photographers will turn in photos with the sRGB profile embedded. sRGB is best suited for web graphics, and should always be converted to the Adobe RGB working space.

Profile Mismatches and Missing Profiles If you're first starting out with color management, you may want to enable all of the Profile Mismatches and Missing Profiles options: Ask When Opening, and Ask When Pasting. Doing so tells Photoshop to display a warning dialog box every time you open or paste a document containing a profile that does not match the current working space profile or an untagged image that contains no profile at all (see Figure 1.44). This way you can make your color management decisions each time you open an image rather than letting Photoshop automatically apply the Color Management Policies chosen in the Color Settings dialog box.

FIGURE 1.44
Profile warnings





The Embedded Profile Mismatch dialog gives you the same options that are available in the Color Settings dialog: preserve, convert, or discard the embedded profile. The Missing Profile dialog lets you assign the working space profile, assign any other profile available, or leave the image untagged.

Once again, for print design and production, sRGB profiles should always be converted to the Adobe RGB working space, and custom profiles should be preserved. Unless you're not planning to use color management at all, never discard an embedded profile or leave an image untagged.

If after a while you find that the color management warning dialogs are slowing you down, and you are almost always converting to the Adobe RGB working space, you can turn off the Ask When Opening and Ask When Pasting options. From that point forward, Photoshop automatically applies the Color Management Policies chosen in the Color Settings dialog, without stopping to ask you each time you open a document.

Synchronized Color Settings

The Photoshop and CS3 color settings are enabled by default when you first launch the application. At the top of the Color Settings dialog box, Photoshop displays whether the current settings are synchronized with the other applications in the suite (see Figure 1.45). To unsynchronize, choose a different setting from the Settings list. For more information on a chosen color setting, hover the cursor over the Settings list and refer to the bottom of the dialog for a brief description.

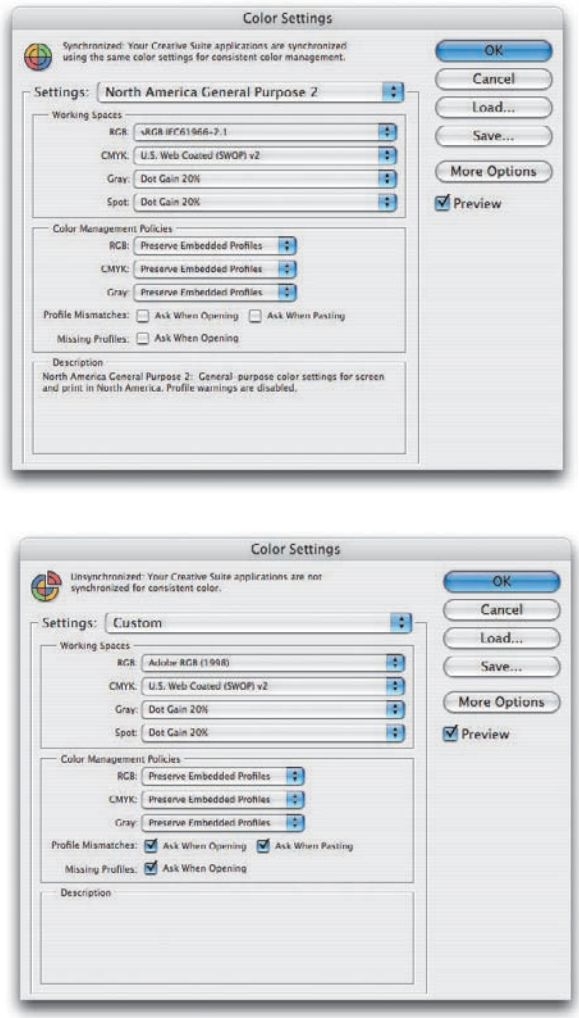


FIGURE 1.45
Synchronized color settings (top) and unsynchronized color settings (bottom)

To resynchronize, choose the same setting applied in the Adobe Bridge application's Suite Color Settings dialog box. You can access this dialog in Bridge by choosing Edit ➢ Creative Suite Color Settings or by pressing Shift+⌘+K / Shift+Ctrl+K. A brief description is listed under each setting name in the dialog (see Figure 1.46). The best choice for print designers and production artists is North America Prepress 2, which uses the Adobe RGB and U.S. Web Coated (SWOP) v2 working spaces.

For more on utilizing Bridge with Photoshop, see Chapter 13.

FIGURE 1.46
The Creative Suite Color Settings dialog box in Bridge

Understanding Resolution for Print

Before you start using Photoshop to edit images for layouts and print design, it's important to know how to size them, and that requires working with *image resolution*. Understanding resolution allows you to take greater control over the final size of the images that you use in your designs. Scaling your finished images to the exact size and resolution necessary is the best possible way to ensure that you will always get high-quality prints of your layouts.

Pixel Logic

Every digital image that you open in Photoshop is made up of thousands, or even millions, of tiny square pixels. The closer you zoom in on an image, the more-visible these individual square pixels become onscreen (see Figure 1.47). A *pixel* is the fundamental building block of a digital image. Each of the binary numbers that make up an image file represents the color of a single pixel. For all photographs captured by using a digital camera, this is the value recorded from a single cell on the camera's sensor chip. A camera's resolution ultimately determines the maximum resolution an image can have, but for most forms of output you'll convert it to a much lower resolution.

Image resolution is determined by the number of pixels per inch (*ppi* for short) that an image contains. This is the measurement that tells us what each image's print size and quality will be upon output. To ensure that the images used in your design will print well, you need to first check the current resolution and document size before placing an image in your layout and printing from an application such as InDesign or QuarkXPress.

Although the default, suggested print resolution that you should use is 300ppi, modern studies prove that an image really needs to be only 220ppi at 100% of its intended print size to produce a high-quality print. If you are creating an image to be displayed on the Web or exclusively onscreen, the image resolution should be set to 72ppi at 100% of its intended viewing size.

FIGURE 1.47
The original image zoomed in to 100% (left). By zooming in to 3200% (right), you can begin to see the square pixels that make up this image.

For example, an image that is 3″ × 2.4″ at a resolution of 220ppi can produce a high-quality print, but contains more pixels than is needed for web display (web images should be as small as possible so that they can download quickly into a browser). The same 3″ × 2.4″ image at a resolution of only 72ppi is small enough to display on the Web and to send as an email attachment, but cannot produce a high-quality print (see Figure 1.48).

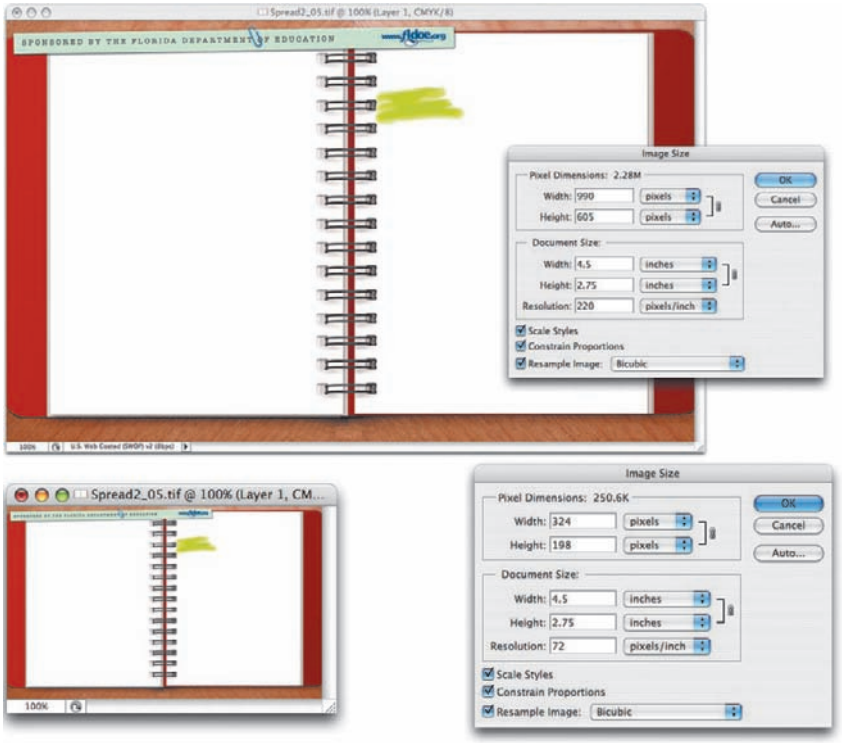


FIGURE 1.48
The top image is displayed at 100% in Photoshop. The Image Size dialog box tells us that it is 4.5″ wide × 2.75″ tall at a resolution of 220dpi. For the lower image we've kept the dimensions at 4.5″ × 2.75″ and changed the resolution to 72dpi. Notice that the on-screen display, as well as the pixel dimensions and the overall file size (shown at the top of the Image Size dialog), are significantly smaller for the lower image than they are for the top image.

When photographing an image to be used in a print design, be sure to use the medium or large capture setting on your digital camera. Doing so allows enough resolution to produce a high-quality print at a normal output size. Most consumer-level digital cameras save captured images at a universal resolution of 72ppi. However, at medium and large capture settings, the pixel dimensions are increased, allowing for higher-quality output.

When scanning an image for print, be sure to import the image at 100%, using a minimum setting of 220ppi.

THE PRINT RESOLUTION SAFETY RULE: HIGHER IS ALWAYS BETTER

If you're not sure how large you want to use an image in a print design project, always photograph or scan it at a higher input setting. Remember, you can always downsample to a lower resolution, but upsampling to a higher resolution will not improve print quality.

What's My Resolution?

By default, Photoshop displays the current document file size at the bottom-left corner of the document. You can change it to display document dimensions by clicking the black arrow to the right of the field and choosing Show ➢ Document Dimensions (Figure 1.49). Additionally, you can choose other display options such as the color profile that is currently applied, or the tool that you currently have selected.

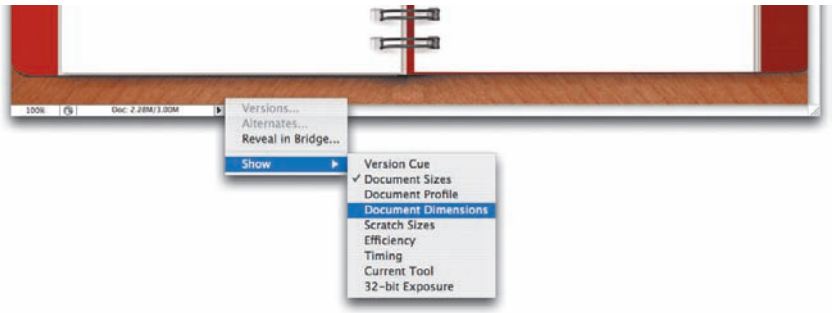
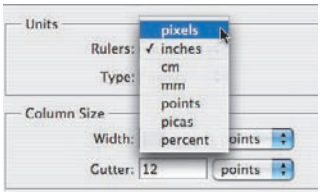
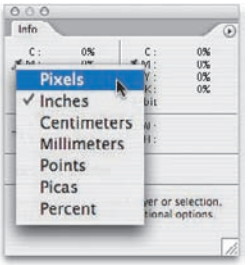


FIGURE 1.49
Various document information is available at the bottom-left of the window.

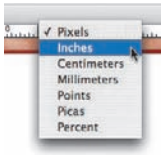
Photoshop uses inches as the default measurement for displaying document dimensions, but you can change this in the Units & Rulers panel of the Preferences dialog box (shown earlier in this chapter in Figure 1.17). From the Photoshop menu (Mac) or the Edit menu (Windows), choose Preferences ➢ Units & Rulers , and select your preferred unit of measurement from the Rulers drop-down list. If it helps you to better understand resolution and how to resize images, choose Pixels rather than Inches as you're working in this book. It's important to start thinking of your images in terms of pixels, which is ultimately what you are working with.



You can also choose a different unit of measurement from the Cursor Coordinates pop-up menu available in the Info palette. Choose Window ➢ Info to display the palette, and then click and hold the + next to the X/Y coordinates at the bottom left to access the menu.



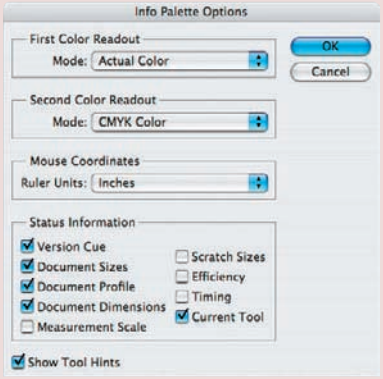
It's also possible to change measurement units by Control+clicking (Mac) or right-clicking (Windows) in the ruler area. Press ⌘/Ctrl+R to make the rulers visible, then Ctrl+click / right-click in the vertical or horizontal ruler area to access the pop-up menu and choose your preferred unit of measurement.



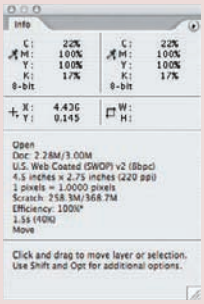
Changing the default unit of measurement in any of these locations also changes the measurement that is displayed at the bottom left of the document window and at the bottom of the Info palette (when it's made visible).

Controlling the Info Palette Display

You can choose what document information you'd like displayed at the bottom of the Info palette. Choose Palette Options from the Info palette menu and select your preferred options at the bottom of the Info Palette Options dialog box.



You can choose as many or as few as you like. Click OK to apply. The Info palette here has been modified to display all status information.

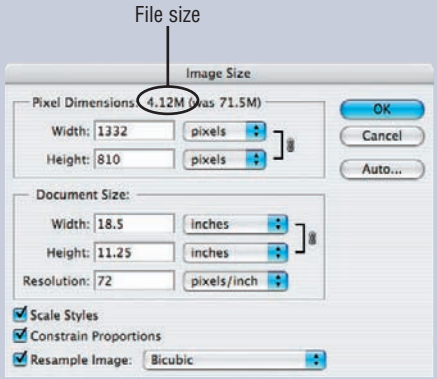


Real World Scenario

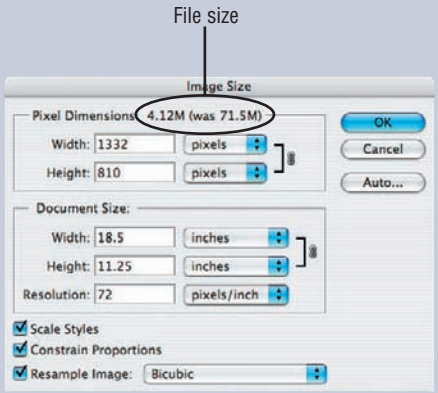
Resizing Images

You can access image size and resolution information and make any necessary adjustments by using the Image Size dialog box. To display the dialog, choose Image ➢ Image Size, or press Option+⌘+I / Alt+Ctrl+I.

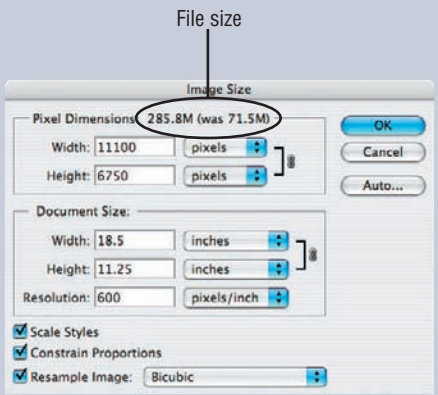
The top of the Image Size dialog displays the overall file size as well as the image width and height dimensions in pixels. The center of the dialog displays the current document size in the measurement of your choice (the default unit is inches), as well as the current image resolution value in pixels per inch.



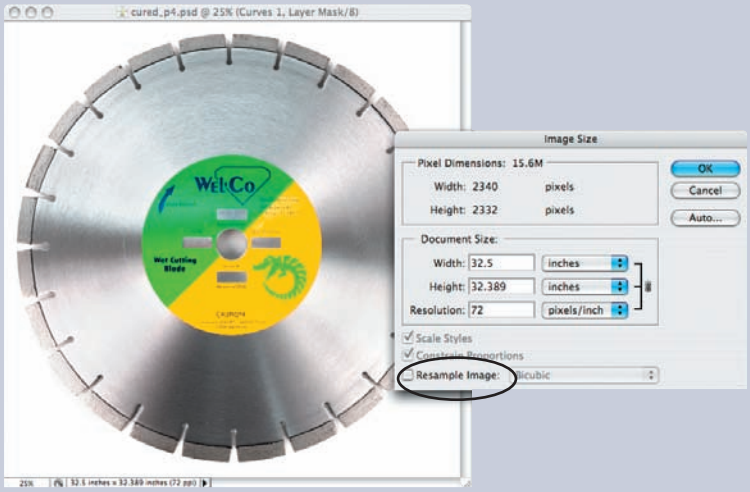
With the Resample Image check box selected, you can raise or lower the resolution value while maintaining the current document size. Lowering the resolution (called *downsampling*) decreases the pixel dimensions of the image by removing pixels and reduces the overall file size. The following image has been downsampled from 300ppi to 72ppi; notice that the file size displayed at the top of the dialog has been reduced.

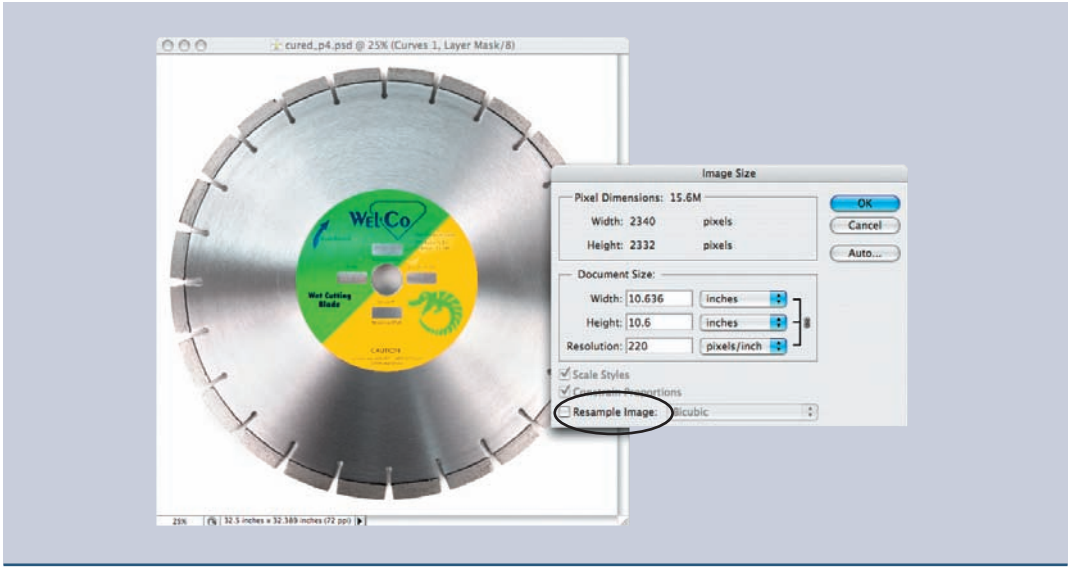


Increasing the resolution value (called *upsampling*) adds pixels to the image and increases the file size. When preparing images for print, you will most likely be downsampling rather than upsampling. Downsampling is a great way to resize large images before placing them into a page layout. The following imagehas been upsampled from 300ppi to 600ppi; notice that the file size displayed at the top of the dialog has been increased.



With the Resample Image option deselected, you can raise or lower the resolution value and alter the document size while maintaining the current pixel dimensions. In other words, you can resize an image in this way without adding or removing pixels. Doing so does not alter the file size or create a noticeable change in the image when viewed onscreen. It affects only the document size and the quality of the image when printing. In order to get a high-quality print from the following image, you must deselect the Resample Image option in the Image Size dialog and increase the resolution value to at least 220ppi. Doing so outputs the image at a much smaller print size.





SIZE YOUR IMAGES FIRST

To produce a high-quality print of your layout, make sure—prior to placement in your layout application—that your images are large enough to print at the intended size *and* are at least 220ppi. It helps to size your images appropriately ahead of time; otherwise, they may be too small to include in your layout.

The Bottom Line

Set Up Your Photoshop Preferences for Print Design/Production Designers depend on their Preferences settings to ensure a stable, trouble-free work environment. Using the Preferences dialog box in CS3, set the preferences that matter most to your print design/production workflow.

Master It Access the Preferences dialog under the Photoshop menu (Mac) or the Edit menu (Windows). Scroll through the panels by clicking the Next and Prev buttons, or by pressing ⌘/Ctrl+1 for the first screen, ⌘/Ctrl+2 for the second screen, and so on all the way up to ⌘/Ctrl+9. Use what you learned in this chapter to set the preferences that work best for your system and your design/production workflow.

Create and Save a Print Design/Production Workspace Photoshop allows you to save your workspace environment so that you don't have to spend time repositioning palettes on the screen every time you launch the application. You can create and save a custom workspace for every type of image-editing work you do.

Master It Arrange your palettes onscreen so that they take up the least amount of room possible. Try regrouping them, stacking them, and placing them in either side well. Make sure the most commonly used palettes are easily accessible. When your screen is set up the

way you like, save the workspace. Create and save a workspace for every type of editing work you do in Photoshop.

Customize Menus and Keyboard Shortcuts Photoshop CS3 allows you to hide and show menu commands and customize keyboard shortcuts. Being able to customize your workspace like this ensures that you'll always be working in a comfortable, uncluttered environment.

Master It Try customizing the interface to display only the menu commands that you—a print designer—will really use. While you're at it, modify the keyboard shortcuts to make them easier for you to remember.

Choose the Proper Color Settings for a Print Production Workflow Photoshop contains enhanced color management features that can make screen colors come as close as possible to what you'll see in the final printed piece. Color management is intended to ensure that the colors you are viewing onscreen are displaying—as accurately as possible—a true representation of what your photos will look like upon final output.

Master It Choose the proper color settings for a print production workflow. Set up your RGB and CMYK working space profiles and preferred color management policies, including profile mismatch and missing profile warnings.

Save Images at the Proper Print Resolution Image resolution is determined by the number of pixels per inch (*ppi* for short) that an image contains. This is the measurement that tells us what each image's print size and quality will be upon output. To ensure that the images used in your design will print well, you need to first check the current resolution and document size before placing the image in your layout and printing from an application such as InDesign or QuarkXPress.

Master It Using what you have learned in this chapter, reduce the dimensions of a high-resolution image (220ppi or higher) without reducing its resolution or ultimately its print quality.

Chapter 2

Making Good Selections

As you edit print images in Photoshop, you are ultimately working with pixels. Often print projects require that you edit specific areas of an image. You can specify which image areas you'd like to edit by *selecting* the pixels that define them. You can also use selections to identify any image layer areas that you'd like to mask. To make this task as painless as possible, Photoshop has provided us with several tools for making good selections.

In this chapter, you will learn to:

- Identify which selection tool to use for the task at hand
- Add to and subtract from a selection path
- Apply a feathered (soft) edge to a selection
- Save and load selections
- Identify when to use the Extract filter

Defining Good Selections

So how can you tell whether a selection is good? It's simple. Good selections are made quickly, easily, and accurately. There are many types of selections you can make, and each type requires the use of specific tools. Therefore, it's worth taking the time to learn how to use all of the selection tools *before* you start making selections. After you familiarize yourself with all of the tools, it will become much easier to identify which ones are best for making particular selections. Work smart, not hard—that's what I always say!

The Selection Border

One thing that nearly every selection has in common (with the exception of those made with the Extract filter, Magic Eraser, and Background Eraser tools) is the *selection border*. This is Photoshop's way of showing you that an area is selected. When you make a selection with the majority of these tools, a blinking dashed border appears around the selected area. This border is often referred to as *the marching ants*, because it resembles a workforce of ants busily marching around your selection.

Hide Those Pesky Ants

Sometimes the marching ants can become very distracting. For example, to clearly see an effect that you'd like to apply to a selected area (such as a Gaussian blur), it helps to hide the marching ants. After you're confident that you've made an accurate selection, you can hide the ants by pressing ⌘/Ctrl+H. You can then apply the effect without all of the distraction. To reveal the selection, press ⌘/Ctrl+H again.

The Tools Palette

By default, the Tools palette appears in a single column docked on the left side of your screen (see Figure 2.1). The Tools palette contains all the various tools available to you—each one represented by a descriptive icon. However, if you're still not sure what tool you're viewing, hover your mouse over it in the palette until a small tool tip description appears.

Figure 2.1
Single-column Tools palette

You can activate a tool by clicking its icon, or by typing its assigned keyboard shortcut (which is included in the tool tip). Any icon showing a small arrow in the bottom-right corner indicates an available toolset—more tools are "hidden" under the one shown. Clicking and holding the icon reveals a flyout menu of additional tools.

There are two ways to display the Tools palette on your screen. The default is the new single-column format, but by clicking the right-facing arrows above the palette, you can change it to display in the traditional double-column format (see Figure 2.2). The Tools palette view can be changed whether it is docked or free-floating.

FIGURE 2.2
Double-column
Tools palette

The Marquee Tools

You can use the marquee tools to select a fixed rectangular or elliptical region of an image. Want to select an image of a door? If so, the Rectangular Marquee tool is your best bet. Or maybe you'd like to select just the doorknob? You guessed it. Use the Elliptical Marquee tool.

But if these simple geometric forms seem too limiting, don't worry. In fact, when selecting images, there's also a lot more you can do with these tools than you may realize. You don't have to use the marquee tools exclusively for selecting image elements that are rectangular or elliptical. It's also possible to use them to select portions of an image. Maybe you'd like to blend the top half of one photograph with the bottom half of another. You can do so by using the Rectangular Marquee tool.

The marquee selection tools can also be great for creating geometric shapes to be used in layer masks and clipping groups. For more on masking, see Chapter 6, "Masking and Combining."

The Rectangular Marquee

The Rectangular Marquee tool selects a rectangular area of the image that you define by dragging diagonally from any corner. You access the Rectangular Marquee tool by clicking and holding the currently visible Marquee tool icon in the Tools palette and selecting Rectangular Marquee Tool from the pop-up menu that appears (see Figure 2.3). You can also toggle between the Rectangular and Elliptical Marquee tools by pressing Shift+M.

Identifying Which Selection Tools to Use

As you edit images for print design, you are often faced with various selection tasks—everything from selecting an entire background to selecting a small part of a much larger image. Some selections are easier to make than others. Therefore, Photoshop has provided us with several tools for making selections. The first step toward making all of your selections quickly and easily is choosing the best tool for the task at hand. In order to identify which selection tool is best for handling these various selection tasks, you must learn how each one of them works. Let's dig into our toolbox and take a close look at how each one of these tools can be used to make our image-editing lives a whole lot easier.

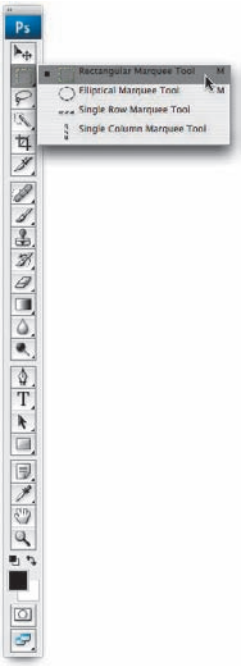


FIGURE 2.3
The Rectangular Marquee tool

To make a selection with the Rectangular Marquee tool, check the Options palette at the top of the screen and make sure the Feather amount is set to 0px and Style is set to Normal. Making a selection with a feathered value any higher than 0px adds a soft edge to the selection (for more on this, see "Changing a Selection's Edge" later in this chapter). Then all you have to do is click and drag.

The Elliptical Marquee

You can access the Elliptical Marquee tool by clicking and holding the currently visible Marquee tool icon in the Tools palette and selecting Elliptical Marquee Tool from the pop-up menu that appears (see Figure 2.4). You can also toggle between the Rectangular and Elliptical Marquee tools by pressing Shift+M.

To make a selection with the Elliptical Marquee tool, check the Options palette at the top of the screen and make sure Anti-alias is enabled, the Feather amount is set to 0px, and Style is set to Normal. Then click and drag to make an elliptical selection.

The Single Row and Single Column Marquee Tools

These two selection tools are hidden away under the Rectangular and Elliptical Marquee tools in the Tools palette. You access them by holding down the currently visible Marquee tool icon in the Tools palette and selecting them from the pop-up menu that appears (see Figure 2.5). Note that you cannot access them by using the Shift+M keyboard shortcut. These tools are limited in that they allow you to select only a 1-pixel-wide row or column. They can be useful for cleaning up the edges of geometric-shaped image layers. For example, let's suppose you've selected an image of a door and cut and pasted it to its own layer. Then let's say you've deleted or changed the background layer. After doing so, you notice that there are some different-colored pixels along the edges of the door, indicating that your initial selection before cutting the image was not accurate. To clean this up, use the Single Row or Single Column Marquee tool to select the pixels and delete them from the layer.

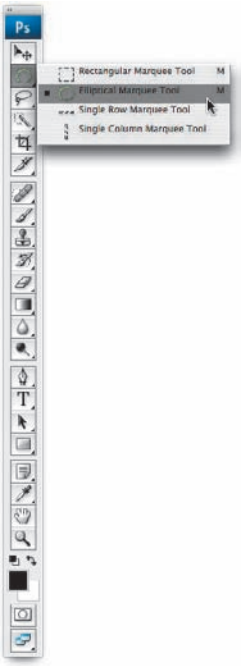


FIGURE 2.4
The Elliptical Marquee tool

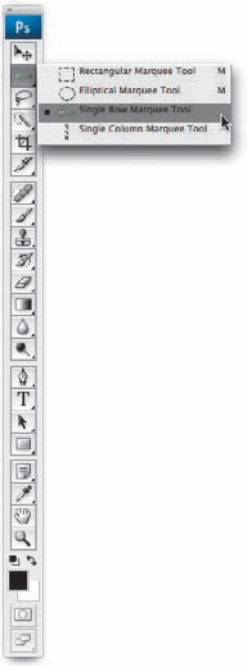


FIGURE 2.5
The Single Row and Single Column Marquee tools

What Is Anti-aliasing?

The Anti-alias option applies a slight transition between pixels, resulting in a smooth selection rather than a jagged one.

The Lasso Tools

The Lasso tool allows you to select intermittent portions of an image by tracing them in a freehand style. Sounds great, right? It is. Except for one major flaw—the tool is extremely difficult to control. Fortunately, Photoshop also includes Magnetic and Polygonal versions of the Lasso that can help guide your free-form selections. But the truth is that all three lasso tools are hard to trace with. You'll want to avoid making large detailed selections with the Lasso. It is best used for modifying selections or for selecting small areas that need to be retouched.

If you're new to the lasso tools, my recommendation is to start out by using them to select simple shapes—not detailed objects containing lots of intricate bends and curves. The simpler the shape you're trying to select, the easier it will be to trace with one of the lassos. Keep in mind also that the more you draw with the lasso tools, the easier it will get. After a while, detailed selections will not seem as hard.

Lasso with a Graphics Pen and Tablet

If drawing freehand is your specialty, you might want to try using a graphics pen and tablet. Doing so can make tracing with the lasso tools much easier.

The Lasso Tool

In my experience, the Lasso is a much better tool for fine-tuning existing selections than for drawing new ones (a topic we'll explore further in "Modifying and Transforming Selections" later in this chapter). However, if you have a steady hand and an incredible amount of patience, you can use the Lasso to make entire selections. For instance, you might consider using the Lasso tool to select the flower in Figure 2.6.

You can access the Lasso tool by clicking and holding the currently visible Lasso tool icon in the Tools palette and selecting Lasso Tool from the pop-up menu that appears (see Figure 2.7). You can also toggle between the Lasso, Magnetic Lasso, and Polygonal Lasso tools by pressing Shift+L.

To make a normal selection with the Lasso, check the Options palette and make sure Anti-alias is selected and the Feather amount is set to 0px.

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FIGURE 2.6
This flower stands out well from its background, so it seems to be a good candidate for tracing.

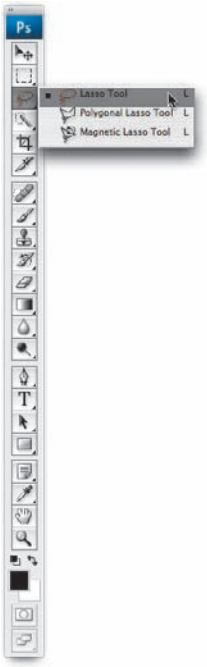


FIGURE 2.7
The Lasso tool

To make a free-form selection with the Lasso tool, click to create a starting point and proceed to trace around the image. Now, here's the tricky part: You must keep the mouse button pressed at all times while making the selection. If you release the mouse button early, Photoshop assumes that you have finished tracing and closes the selection path automatically (see Figure 2.8).

FIGURE 2.8
Releasing the mouse button as you trace with the Lasso automatically closes your selection path.

If you zoom in on the image before you begin tracing, you can make a much more precise selection (see Figure 2.9). As you trace, click and hold the spacebar to temporarily access the Hand tool and navigate around the image. This way, you don't have to let go of the mouse button and risk closing your selection early.

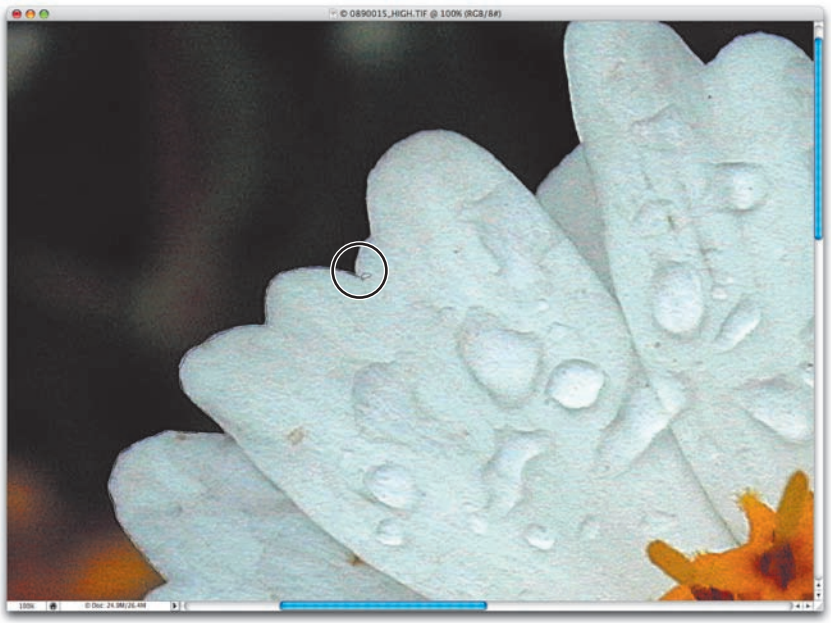


FIGURE 2.9
Zooming in on the flower made selecting it with the Lasso tool much easier.

Zoom While You Select

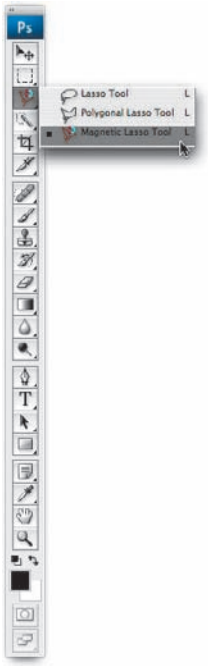
As you trace with the traditional Lasso tool, you can zoom in or out on the image by holding the ⌘/Ctrl key while pressing the plus (+) or minus (–) keyboard shortcuts. Just be careful not to let up on the mouse button!

The Magnetic Lasso Tool

The Magnetic Lasso tool offers you much more control for selecting entire objects than the traditional Lasso does. This version of the lasso automatically senses the edges of an object as you trace, even if the photograph contains low contrast and varied background colors. Because of this, the Magnetic Lasso tool is actually a much better tool for selecting the flower shown in Figure 2.6 than the Lasso.

You can access the Magnetic Lasso tool by clicking and holding the currently visible Lasso tool icon in the Tools palette and selecting Magnetic Lasso Tool from the pop-up menu that appears (see Figure 2.10). You can also toggle between the Lasso, Magnetic Lasso, and Polygonal Lasso tools by pressing Shift+L.

Figure 2.10
The Magnetic Lasso tool



Toggle between Tools in a Set

Another way to toggle between tools in a set, such as the lasso or marquee tools, is to Option/Alt+click the currently visible tool icon in the Tools palette.

To make a normal selection with the Magnetic Lasso, check the Options palette to make sure Anti-alias is selected and the Feather amount is set to 0px. Then click to create a starting point and proceed to trace around the edge of the image. The great thing about the Magnetic Lasso is that you do not need to keep the mouse button pressed as you trace—all you need to do is click once and move the mouse. Depending on your Options palette settings and where the mouse is placed, Photoshop determines where the edge is and makes the selection for you. As you trace, the tool locks the line segments in place by automatically adding square anchor points to the selection path (see Figure 2.11).

FIGURE 2.11
Tracing with the Magnetic Lasso is much easier than tracing with the traditional Lasso tool.

The additional Options palette settings allow you even greater control over the tool. The most significant of these is the Width option, which lets you set how close to the edge of the object your cursor needs to be for the tool to recognize it. Larger values allow you to be less precise when tracing. Smaller values are helpful when selecting detailed areas of an image.

MAGNETIC LASSO WIDTH-SETTING SHORTCUTS

You can increase or decrease Width settings by pressing the bracket keys as you trace with the Magnetic Lasso tool. Press] to increase the Width value, and [to decrease it.

The Edge Contrast option allows you to set a value for detecting the edges of an object. Lower values are better for detecting edges that are less defined; higher values are better for detecting well-defined edges. The Frequency option lets you set the rate at which the tool adds anchor points to the selection path. Higher Frequency values increase the number of anchor points added to the selection path as you trace (see Figure 2.12).

FIGURE 2.12
Using the Magnetic Lasso tool with a lower Frequency value (top) generates relatively few anchor points. Using a higher Frequency value (bottom) generates more anchor points.

Here are some additional tips for selecting with the Magnetic Lasso tool:

- If your selection path strays from the edge of the object, trace backward to fix it. Tracing backward will not erase anchor points.
- Press Delete or Backspace to erase unwanted anchor points.
- Click to add anchor points manually as you trace.
- As you trace, Option/Alt+click to temporarily switch to the Polygonal Lasso tool for a straight-line segment. Click again to add an anchor point and switch back to the Magnetic Lasso.
- To close a selection path drawn with the Magnetic Lasso tool, double-click or press Return/Enter.

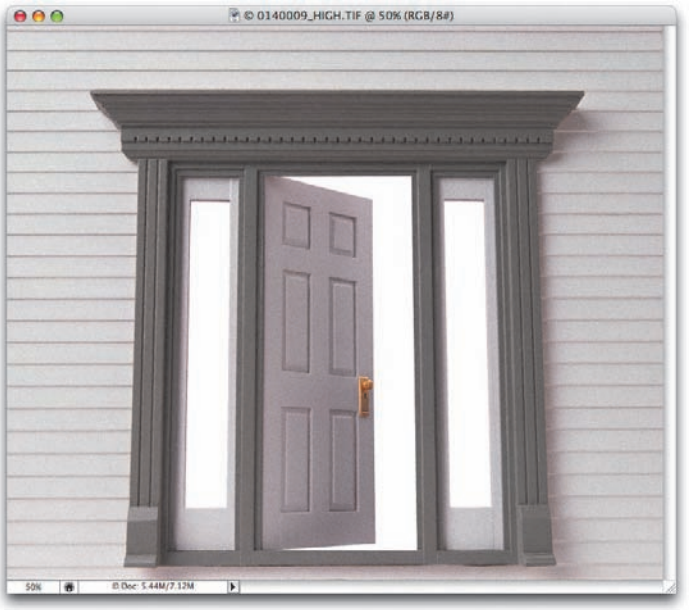
When used properly, the Magnetic Lasso can be a powerful tool for removing an object from its background, as evidenced by the flower shown in Figure 2.13. This flower is now ready to be saved as a transparent graphic and placed in a layout.

FIGURE 2.13
The flower removed from its background by using a Magnetic Lasso tool selection

THE POLYGONAL LASSO TOOL

Although it's not nearly as slick as the Magnetic Lasso, the Polygonal Lasso still offers you much more control than the traditional Lasso. It is designed to select objects by using nothing but straight-line segments. Because it prohibits you from selecting any curved areas, the types of objects you can select with it are severely limited. However, despite that limitation, there's still a lot you can select by using the Polygonal Lasso (see Figure 2.14).

FIGURE 2.14
The doorway in this photograph is made up of nothing but straight edges, which makes the Polygonal Lasso a good tool for selecting it.



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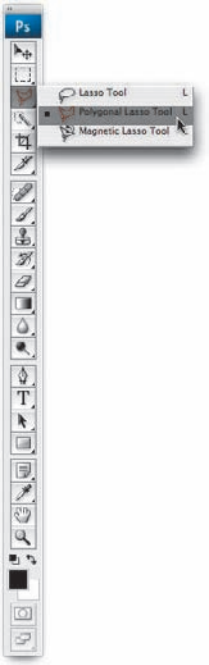
To access the Polygonal Lasso tool, click and hold the currently visible Lasso tool icon in the Tools palette and select Polygonal Lasso Tool from the pop-up menu that appears (see Figure 2.15). You can also toggle between the Lasso, Magnetic Lasso, and Polygonal Lasso tools by pressing Shift+L.

FIGURE 2.15
The Polygonal Lasso tool



To make a normal selection with the Polygonal Lasso, examine the Options palette to make sure Anti-alias is selected and the Feather amount is set to 0px. Click once to create a starting line segment and proceed to trace around the image. You do not need to hold the mouse button down as you trace. Each additional click creates a connecting, straight-line segment (see Figure 2.16).

FIGURE 2.16
Move the cursor in the direction you'd like each line segment to follow, and then click to secure it in place.

Here are some additional tips for selecting with the Polygonal Lasso tool:

- Press Delete or Backspace to erase unwanted angles.
- Press and hold the Shift key as you draw to constrain the angle of the line segments to the nearest increment of 45°.
- To close a selection path drawn with the Polygonal Lasso tool, double-click or press Return/Enter. You can also close the path by hovering over the starting point and clicking (see Figure 2.17).

The Magic Selection Tools

Photoshop also contains some automated "magic" selection tools. Believe it or not, these tools are designed to make selections with just one click. After you start using them, you'll see for yourself that they truly do work like magic!

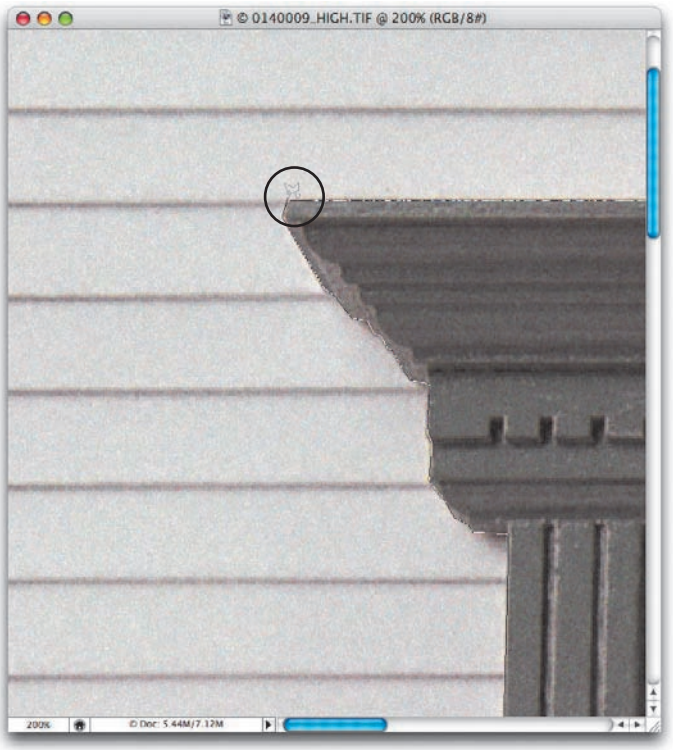


FIGURE 2.17
When you see the small circle appear next to the Lasso cursor, click to close the selection path.

However, before you get too excited, I should warn you that there are a few stipulations. The magic tools are designed to select large areas of solid color. This makes them perfect for removing skies and solid-color backgrounds—not busy, detailed areas of an image. Also, each magic selection tool has its own set of controls, and you need to spend some time tweaking them (or the image itself) before you can make any magic happen. Nevertheless, when used with the proper settings, these tools can be huge time-savers.

THE MAGIC WAND

The Magic Wand allows you to select large areas of color in an image with a single click. This makes it the perfect tool for compositing images, such as the one shown in Figure 2.18.

By default, the Magic Wand is now hidden underneath the Quick Selection tool in the Tools palette. To access the Magic Wand tool, click the Quick Selection tool icon in the Tools palette and select Magic Wand Tool from the flyout menu. You can also toggle between these two tools by pressing Shift+W on your keyboard (see Figure 2.19).

Before

After

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FIGURE 2.18
After I selected the coffee in this photograph by using the Magic Wand, I easily replaced it with an entirely different image.

Before clicking in the area of the photo that you want to select, first check the Options palette to make sure the proper settings are enabled. Here's a quick rundown of what each of them does:

Tolerance If an area to be selected varies in brightness, the value entered here determines how much of the surrounding area the wand will select. The point where you click will have a specific luminosity value, and the Tolerance setting determines the range of luminosity values that will also be selected.

FIGURE 2.19
The Magic Wand tool

Anti-alias Enabling this option softens the edges of your selection. In general, you will want to keep this option turned on at all times when making selections with any tool.

Contiguous Enabling this option tells the Magic Wand to select adjacent regions of color. To select similar but nonadjacent regions, keep this option turned off.

Sample All Layers When working with multilayered files, enabling this option allows you to select regions of color on all layers.

The Tolerance value you should use depends on the range of luminosity values present in the colored area that you are trying to select. The wider the range of values, the higher the setting needs to be in order to make the selection with one click.

Even though the sky background shown in Figure 2.20 is clearly blue, if you look closely, there are many variations of blue throughout and they are interspersed with the white of the clouds. These variations are measured in luminosity values. By default, the Tolerance control is set to select luminosity values 32 shades lighter or darker than the initial color selected where you clicked with the wand. This means that if you click in a neutral area of the sky background with the Magic Wand, you might not select the entire sky. When this happens, you have three options:

- Undo the selection (by pressing ⌘/Ctrl+Z, or choosing Edit ➢ Undo). Then raise the Tolerance value to something higher than 32 and try again (see Figure 2.20).

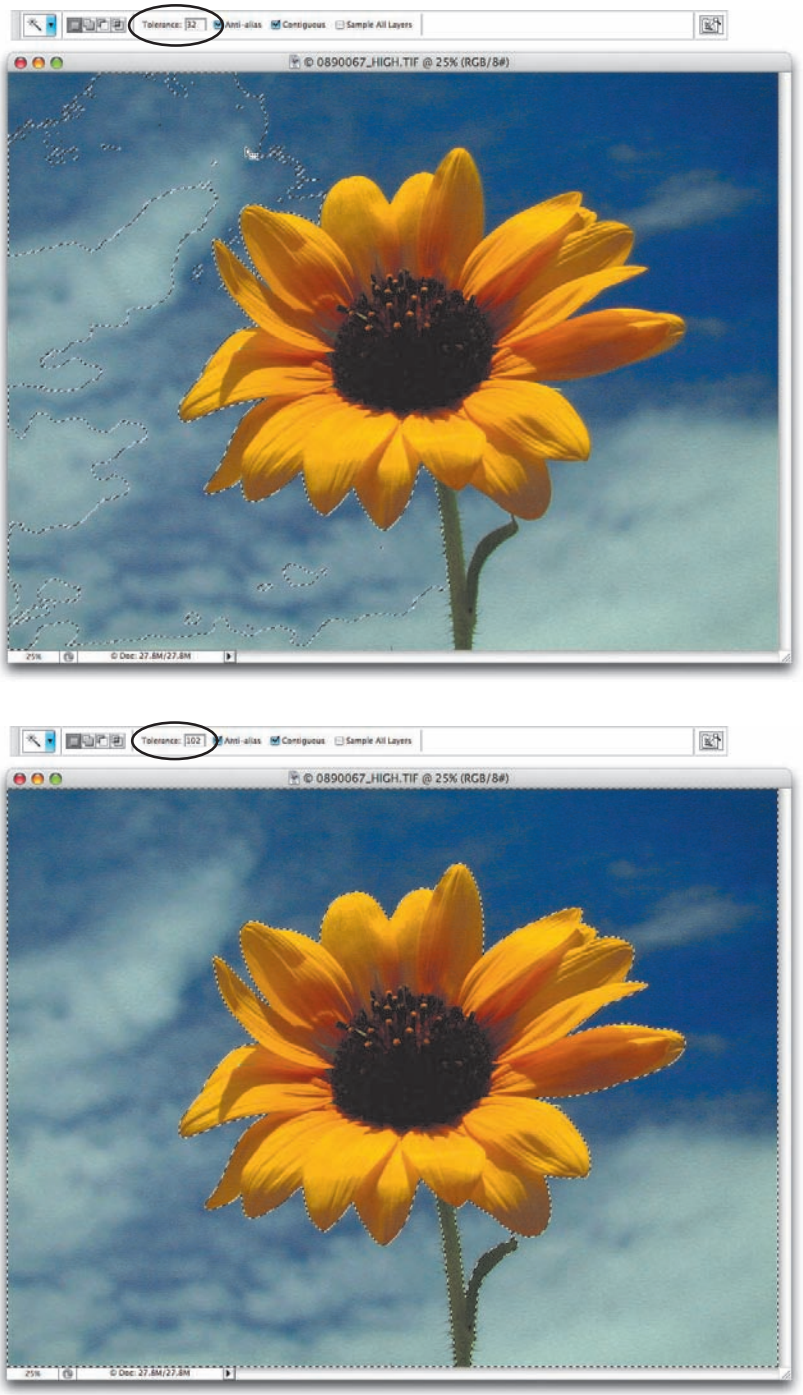

FIGURE 2.20
With the Tolerance value set to 32 (the default), I was unable to select the entire background with just one click of the Magic Wand (top). Setting the Tolerance value to 102 did the trick (bottom).

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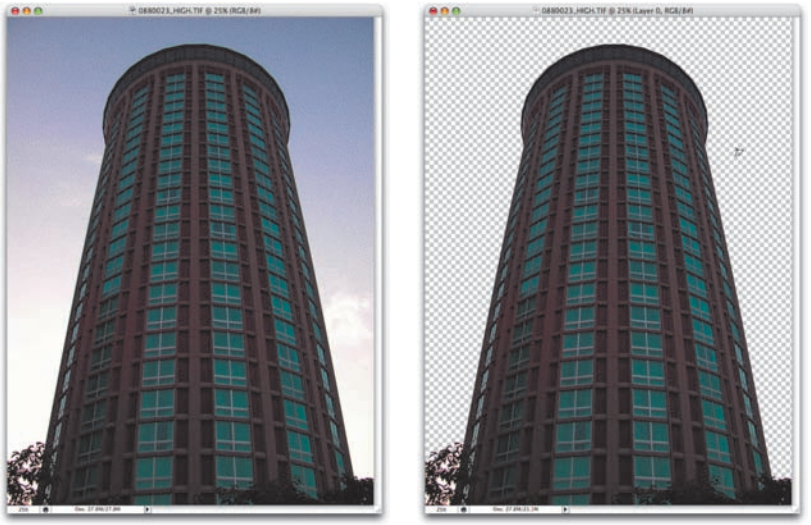
- Modify the selection by using the Select ➢ Grow Or Select ➢ Similar commands (for more on this, see "Modifying and Transforming Selections" later in this chapter).
- Shift+click the unselected area to add it to the selection (also see "Modifying and Transforming Selections").

If the opposite happens, and you select more than the intended area, undo, decrease the Tolerance value, and try again.

The Magic Eraser

Although it's technically not a selection tool, the Magic Eraser makes it extremely easy to isolate images from a solid-color background. You can think of this as a sort of reverse selection. The tool is designed to erase large areas of color in an image with a single click. In many instances, this makes it an even better tool than the Magic Wand for replacing backgrounds (see Figure 2.21).



Before After

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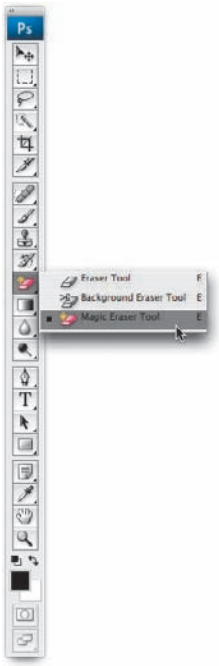
Figure 2.21
With the Magic Eraser, we can erase the background in this image with just one click.

To access the Magic Eraser tool, click and hold the currently visible Eraser tool icon in the Tools palette and select Magic Eraser Tool from the pop-up menu that appears (see Figure 2.22). You can also toggle between the Eraser, Background Eraser, and Magic Eraser tools by pressing Shift+E.

FIGURE 2.22
The Magic Eraser



The Magic Eraser includes the same Options palette controls as the Magic Wand (described in the previous section), plus an additional Opacity setting that allows you to make a region of color translucent (instead of erasing it completely). Before clicking in the area of the photo that you want to erase, first check the Options palette and make sure that the proper settings are enabled.

To erase the entire background as shown in Figure 2.21, the Anti-aliased and Contiguous options needed to be selected. As with the Magic Wand tool, the proper Tolerance value depends on the range of luminosity values present in the colored background that you are trying to erase. The wider the range of values, the higher the setting needs to be to erase the area with one click.

Like any sky background, the one shown in Figure 2.21 contains many luminosity values. Remember, by default the Tolerance control is set to select luminosity values 32 levels lighter or darker than the initial clicking point. If you click in a neutral area of the background and are using the default Tolerance setting, you may not erase all of it.

When this happens, you have two options:

- Undo the erasure, and then raise the Tolerance value to something higher than 32 and try again (see Figure 2.23).
- Click in the remaining areas to erase them. You can raise or lower the Tolerance value as needed when using this method.

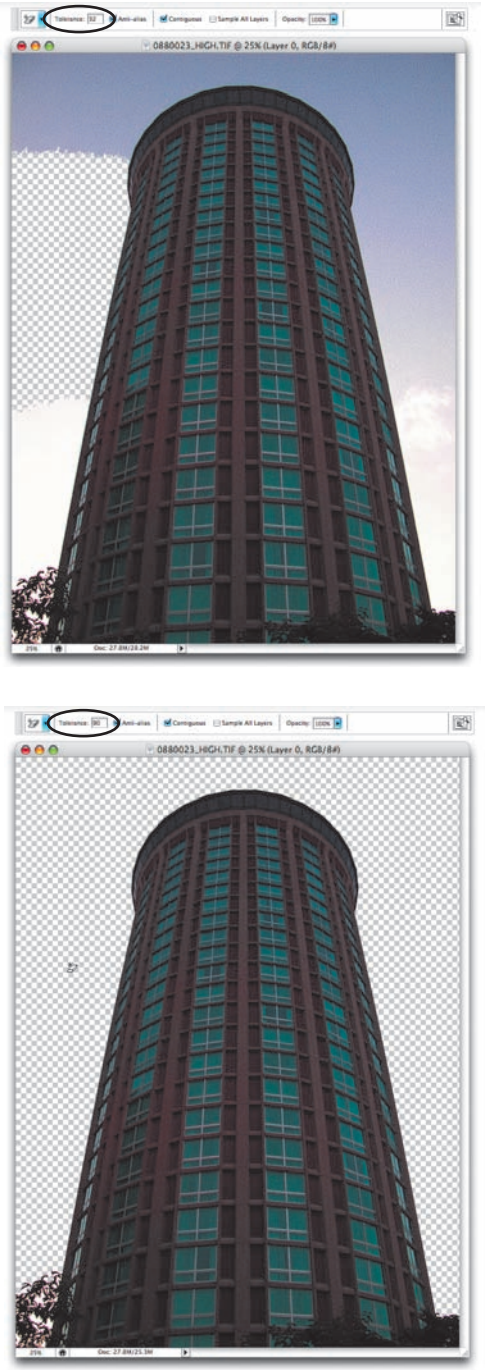


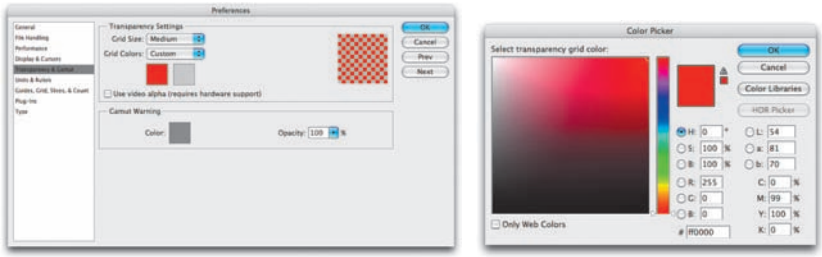
FIGURE 2.23
With the Tolerance value set to 32 (the default), I was unable to erase the entire background with just one click of the Magic Eraser (top). Setting the Tolerance value to 90 did the trick (bottom).

It's also possible to raise the Tolerance value too high and accidentally erase pixels in the object that you're trying to isolate (see Figure 2.24). When this happens, undo, decrease the Tolerance value, and try again.

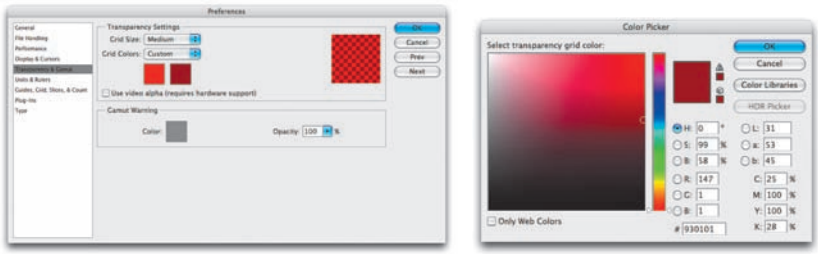
FIGURE 2.24
Be careful not to raise the Tolerance value too high (125 in this example), or you could wind up erasing too much of the image.

The Magic Eraser also has the tendency to leave stray pixels that are difficult to see over the default transparent, gray-and-white checkerboard. To reveal any remaining artifacts, it helps to change the default preference settings for this transparency grid. From the Photoshop menu (Mac) or the Edit menu (Windows), choose Preferences ➢ Transparency & Gamut. In the Transparency Settings section of the dialog box that appears, click the bottom-left color swatch and change it to a bright red by using the Color Picker (Figure 2.25, top). Click OK to close the Color Picker and then click the color swatch on the right in Preferences dialog box. Proceed to change the color to a dark red (Figure 2.25, bottom). Click OK to close the Preferences dialog.

FIGURE 2.25
You can enter the values shown here in the RGB or HSB field to change the default transparency checkerboard colors to red.



Changing the Color Swatch on the Left



Changing the Color Swatch on the Right

With the transparent checkerboard color changed to red, it's much easier to see the artifacts left behind by the Magic Eraser. To eliminate these artifacts, undo (press ⌘/Ctrl+Z) and increase the Tolerance setting. Click in the background area again to erase it, and inspect the image for any leftover pixels.

THE QUICK SELECTION TOOL

The new Quick Selection tool is great for editing high-resolution images in a fast-paced workflow. It allows you to make "magic" selections by using a brush. This means that you can make quick selections without having to trace the image. As you paint inside the portion of the image that you want to select, the tool recognizes areas of high contrast and selects them for you. It behaves a lot like the Magic Wand tool, only without having to apply any Tolerance settings (see Figure 2.26).

By default, the Quick Selection tool is grouped with the Magic Wand tool in the Tools palette. To access the Quick Selection tool, click its icon in the Tools palette, or click and hold the currently visible tool in the set and select Quick Selection Tool from the flyout menu. You can also toggle between these two tools by pressing Shift+W on your keyboard (see Figure 2.27).

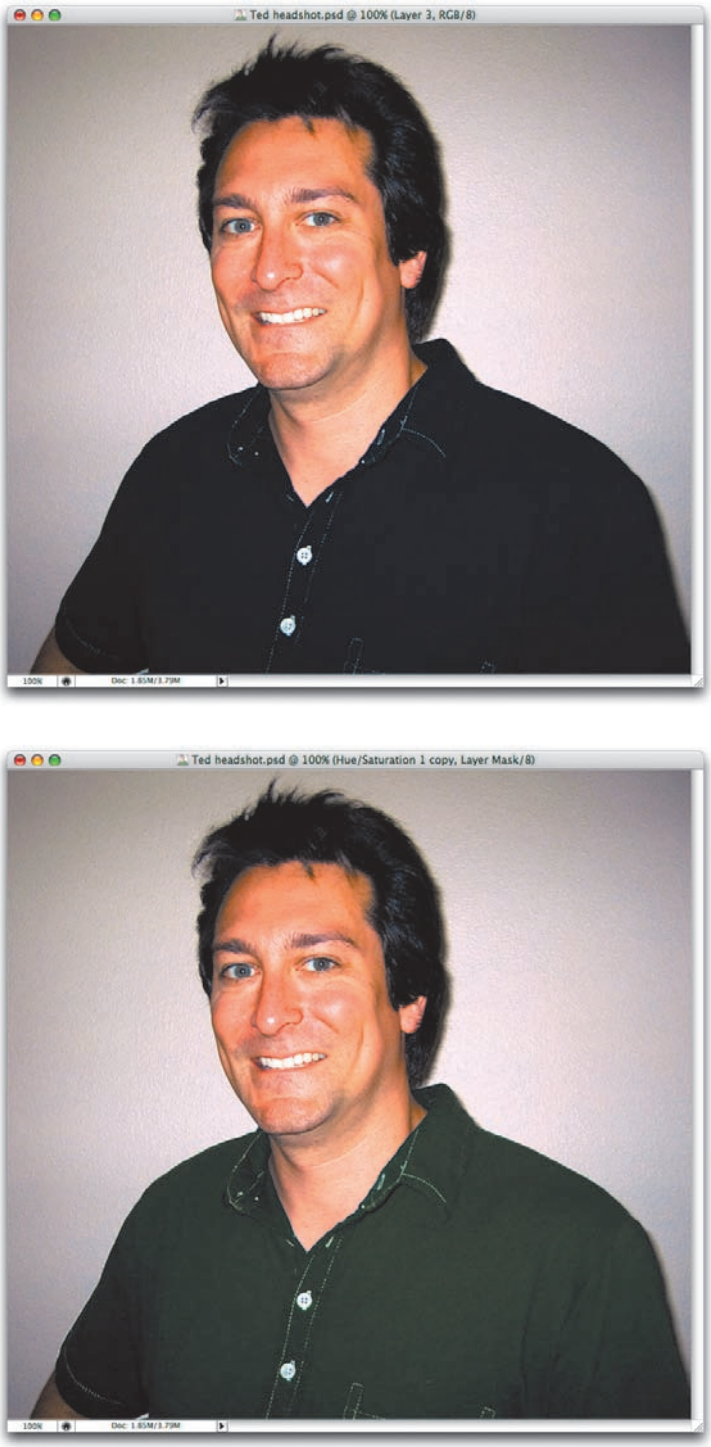
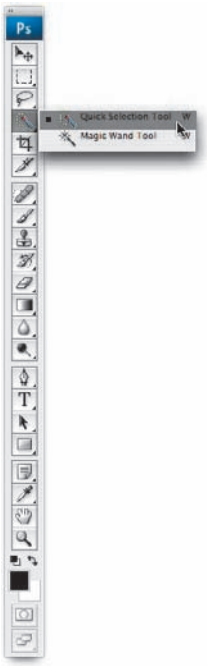


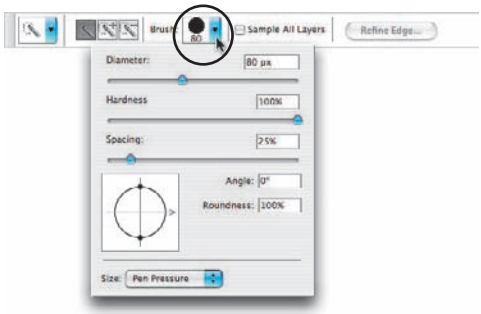
FIGURE 2.26
With the Quick Selection tool, I was able to select my shirt in this photo with just two brush-strokes (top). Doing so allowed to me to change the shirt's color (bottom).

FIGURE 2.27
The Quick Selection tool



Before clicking in the area of the photo that you want to select, first choose a brush diameter setting (in pixels) from the Brush drop-down list in the Options palette. Type in a number or move the slider left or right to set the diameter value (see Figure 2.28). Think of the diameter setting as a type of Tolerance value (if you're not sure what Tolerance is or how it works, see the preceding Magic Wand section). The value you should use depends on the range of luminosity values present in the image area you are trying to select. The wider the range of values, the higher the setting needs to be to select the area with one quick brushstroke—just as it is when working with the Magic Wand or Magic Eraser tools. To select the shirt in Figure 2.26, the brush diameter was set to 80 pixels, and a quick brushstroke was applied to the image area.

FIGURE 2.28
Set the brush diameter in the Options palette before selecting with the tool.



As you click and drag with the mouse, the selection grows. Painting near the edges of an object causes the selection area to expand and follow the shape's contours.

After your initial selection is made, you can subtract from it by pressing Option/Alt and dragging the brush over the selected areas. If you'd like to add to the selection, press Shift and apply more brushstrokes.

Not as Quick as You Might Think

In general, the Quick Selection tool works best when used to select objects with well-defined edges. Try to use this tool to select detailed, low-contrast images, and you'll soon learn how painfully slow the Quick Selection tool can really be. The inability to set a Tolerance level limits the types of selections you can make quickly and accurately.

The Background Eraser

The Background Eraser makes it easy to isolate images from a complex background. The tool is designed to evaluate the edges of an object and erase any surrounding colors. This makes it a much more powerful tool than the Magic Eraser for removing an object from its background, but not as powerful or as accurate as the Extract filter (see Figure 2.29).

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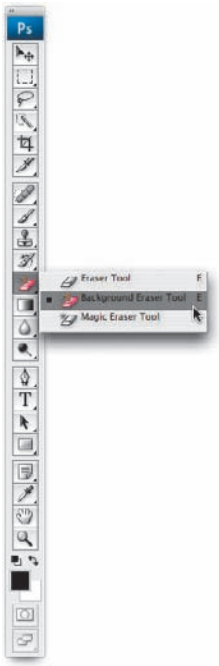
Figure 2.29
The Background Eraser is a good tool for removing this butterfly from its busy background.

To access the Background Eraser, click and hold the currently visible Eraser tool icon in the Tools palette and select Background Eraser Tool from the pop-up menu that appears (see Figure 2.30). You can also toggle between the Eraser, Background Eraser, and Magic Eraser tools by pressing Shift+E.

FIGURE 2.30
The Background Eraser



The Background Eraser has its own set of controls in the Options palette. Here's a quick run-down of what each of them does:

Brush Click the brush preview icon (or the down arrow directly next to it) to reveal a pop-up palette containing various brush controls, including diameter, hardness, spacing, angle, and roundness. There are also size and tolerance settings located at the bottom of the palette for working with a pressure-sensitive graphics tablet.

Sampling: Continuous The Continuous setting (the default for the Background Eraser) tells Photoshop to keep sampling the color under the cursor's crosshair as you move the mouse to erase. This is the setting to use when trying to erase a detailed background.

Sampling: Once The Once setting tells Photoshop to sample and erase only the color that is under the cursor's crosshair when you click the mouse. It does not continue to sample colors as you drag. This is the setting to use when trying to erase a solid-color background.

Sampling: Background Swatch The Background Swatch setting tells Photoshop to erase only the areas that match the current Background Color. You can use this setting to remove any

halos left over after erasing with the Continuous or Once settings. Hold down Option/Alt to sample the halo color; then press X to make it the current Background Color. Erase with this setting enabled in order to remove the halo.

Limits This option tells Photoshop what colors to erase within the chosen brush diameter. The default Contiguous setting erases any colors within the Tolerance range that are adjacent to the sampling point (indicated by the + located in the center of the Background Eraser cursor). The Discontiguous setting allows the Background Eraser to jump over colors, occasionally into the foreground object. Therefore, Contiguous is generally the better option. The Find Edges option works like the Contiguous setting but does a much better job of protecting edges of the foreground object from becoming partially erased and appearing semitransparent.

Tolerance The percentage entered here determines how close a color must be to the sampling point in order for it to be erased.

Protect Foreground Color Enabling this option tells Photoshop not to erase the chosen foreground color with the Background Eraser. Hold down Option/Alt to sample a color near the edge of the image that you don't want to erase. The sampled color becomes the new Foreground color. Proceed to erase the background without affecting the foreground image.

The best way to isolate an image when using the Background Eraser is to choose a smaller brush size, place the sampling point just outside the edge of the object, and trace around it. The outer edge of the brush cursor circle should overlap the edge of the object as you trace (see Figure 2.31). For best results, paint slowly and use multiple brushstrokes.

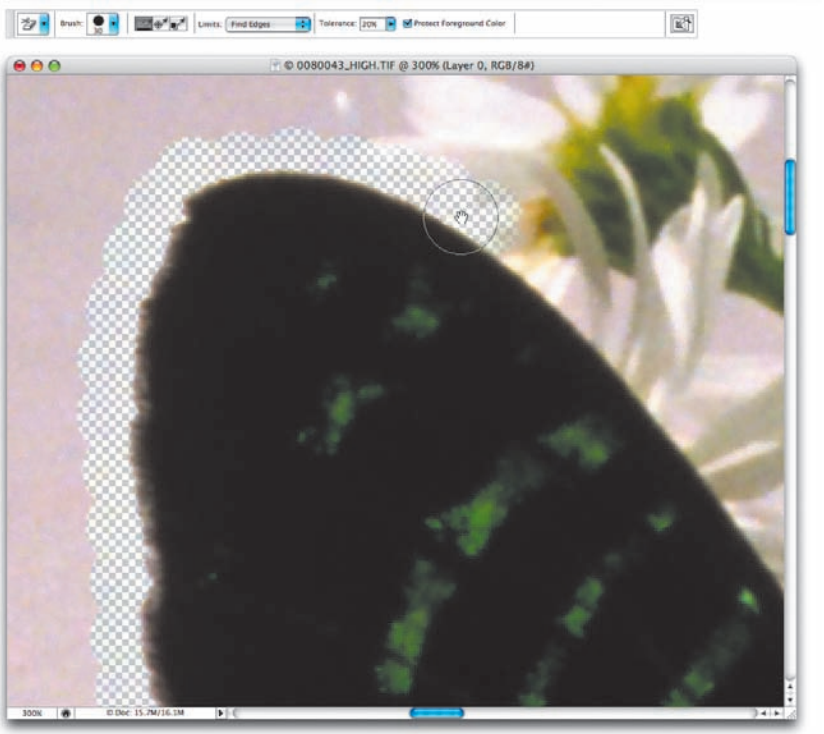


FIGURE 2.31
A brush size of 30 pixels is just enough to define the edge of this butterfly.

Transparency Color Preferences

If the default gray-and-white transparency checkerboard makes it too hard to see the edge of your selection, you can change it in the Preferences dialog box. From the Photoshop menu (Mac) or the Edit menu (Windows), choose Preferences ➢ Transparency & Gamut. In the dialog box that appears, under Transparency Settings, click each color swatch to access the Color Picker. Proceed to change the default colors to something that offers better contrast with your image.

If the results are uneven, choose Window ➢ History to display the History palette, and revert to the last state before the first stroke was applied. Lower the Tolerance setting and trace again. Keep testing until you find the right Tolerance setting. Although working with the Background Eraser requires a lot of trial and error, it can be an accurate way of removing a detailed selection from its background. After the edge is defined, you can use the Eraser tool to remove the rest of the Background.

Making Color Range Selections

The Select ➢ Color Range command is a great way to select specific colors in an image. In most instances, this is a much easier and more accurate way to select colors that you intend to replace (see Chapter 3, "Working with Color").

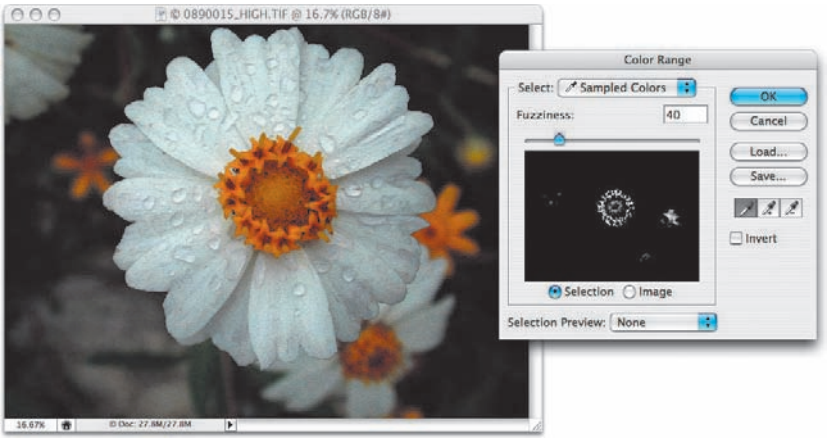
To select colors by using Color Range, choose Select ➢ Color Range. When the dialog box appears, click the color in the image with the eyedropper. Try to click in the most neutral midtone area of the color. Refer to the dialog preview window to determine whether the area is selected well enough. The white areas that appear in the preview window are the areas that will be selected when you click OK. To preview the selection in the document window, choose White Matte, Black Matte, Grayscale, or Quick Mask from the Selection Preview menu (see Figure 2.32).

To extend the color range selection and add any shadow or highlight areas of the color, switch to the Add To Sample eyedropper and click in those areas of the image (see Figure 2.33). If you accidentally click on the wrong color, you can remove it from the selection by clicking with the Subtract From Sample eyedropper.

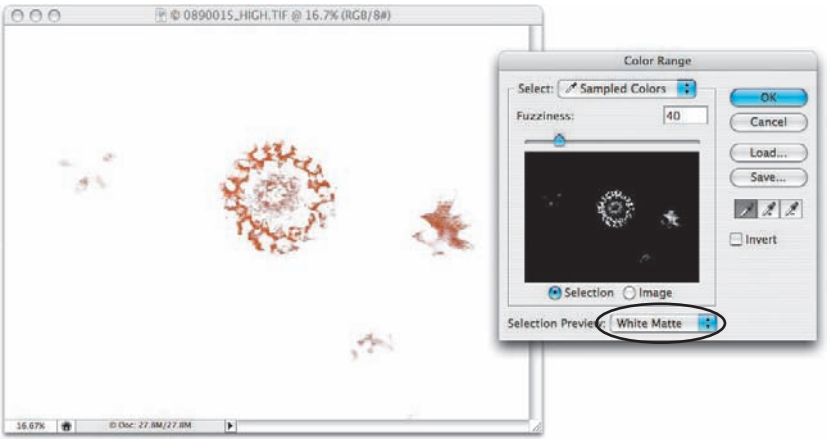
You can also add to the color range selection area by increasing the Fuzziness amount. As you drag the slider to the right, Photoshop adds more hues of the selected color as it finds them throughout the image. If there are traces of the color visible throughout the shadow and highlight areas of the image, you will want to increase the Fuzziness amount. To accurately select isolated colors, use low Fuzziness settings and add to the selection when necessary by clicking multiple times with the Add To Sample eyedropper (see Figure 2.34).

After the entire selected area of color appears in the preview, click OK to make the selection. The marching ants should appear immediately over your image; however, keep in mind that this is a different type of selection than those made with any of the other "ant-generating" selection tools, such as the Magic Wand or Lasso. Because the selection was made using eyedropper samplers and a Fuzziness control, it contains areas that are only partially selected. In most instances this can result in a much smoother adjustment.

FIGURE 2.32
Previewing over a white matte makes it much easier to see the selected color range.

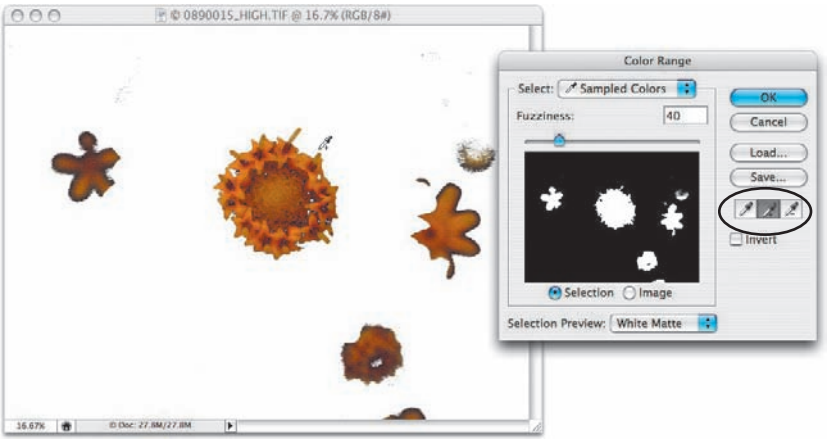


Selection Preview: None



Selection Preview: White Matte

FIGURE 2.33
Add to or subtract from the color range selection by using the Add To Sample or Subtract From Sample eyedroppers.



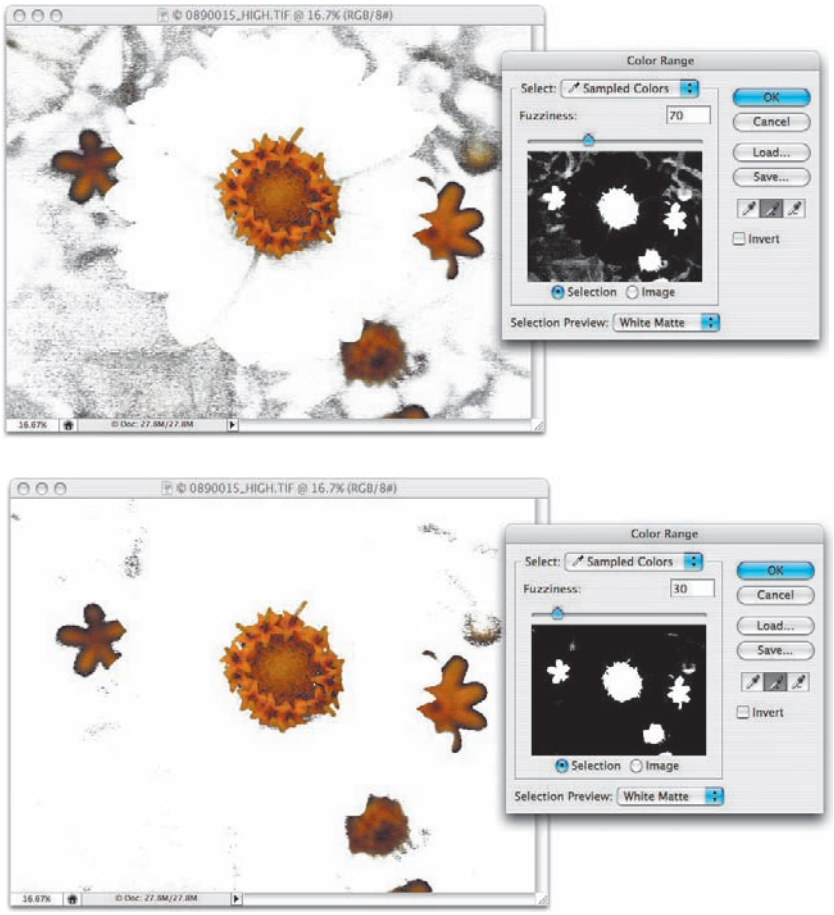


FIGURE 2.34
Increasing the Fuzziness amount adds to the overall color range selection (top). Lower Fuzziness settings are best used for selecting isolated colors (bottom).

Modifying and Transforming Selections

In many instances, it can be too difficult to select an entire object or region of a photo by using just one method or tool. In fact, good selections are often made in steps. This requires making your initial selection and then altering it by using additional tools, commands, and key modifiers. It might also require that you invert the selection path or change its edges. Let's take a look at the different ways you can modify selections and how you can save them for later use in a document.

Adding and Subtracting Selections

There are several ways to add pixels—parts of an image—to a selection or subtract them. Photoshop provides keystroke modifiers that allow you to add or subtract pixels when selecting with certain tools, such as the Magic Wand, the lasso tools, and the marquee tools. You can even use these key commands in the Extract Filter dialog box. Menu commands are also available that enable you to expand or contract a selection path.

Keystroke Modifiers

The quickest and easiest way to clean up messy selections is to apply the Shift or Option/Alt keys as you work with the selection tools. Pressing and holding Shift or Option/Alt as you drag or click with the tool enables you to add or subtract pixels, respectively, from an existing selection path. (Shift allows you to add; Option/Alt allows you to subtract.) This can be an extremely useful way to fine-tune selection paths.

For example, you've seen that clicking once with the Magic Wand can result in an incomplete selection. If the Tolerance setting is too low, some pixels may get left behind. If it is too high, you may wind up selecting more pixels than you need. When this happens, rather than applying the Undo command (⌘/Ctrl+Z) and reselecting, it may be easier to adjust the Tolerance level and add or subtract the desired pixels by using the Shift or Option/Alt key modifiers (see Figure 2.35).

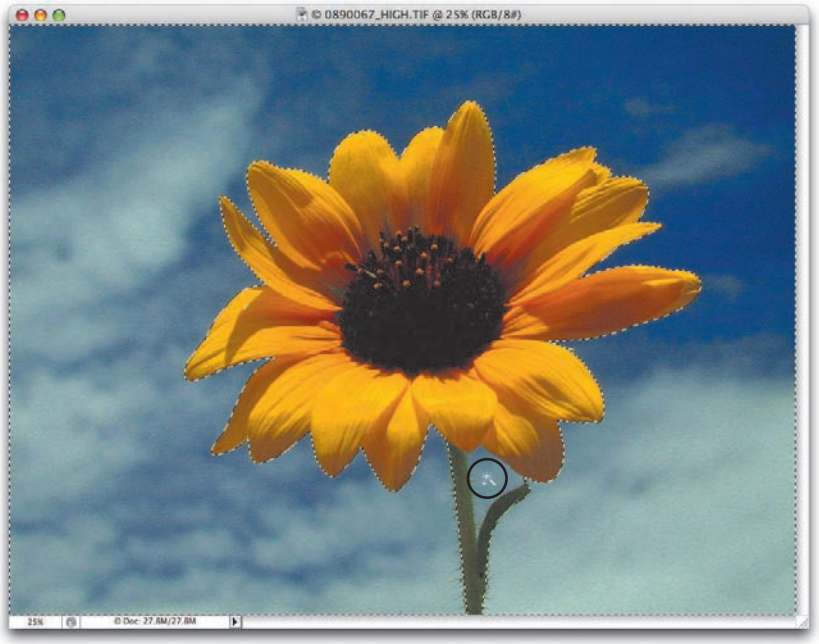
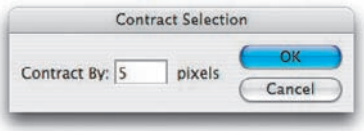


Figure 2.35
Hold down the Shift or Option/Alt keys and click with the wand in the areas you want to add or subtract.

The Shift or Option/Alt key modifiers also come in handy when fine-tuning selections made with the free-form Lasso tool (Figure 2.36) or the Polygonal Lasso tool, which doesn't let you create curves (Figure 2.37).

The Expand/Contract Commands

The Expand and Contract commands allow you to increase or decrease, respectively, the area of an enclosed selection path such as an ellipse or rectangle. To apply the commands, all you need to do is make your initial selection and then choose Select ➢ Modify ➢ Expand Or Contract. In the dialog box that appears, enter a pixel amount and click OK.



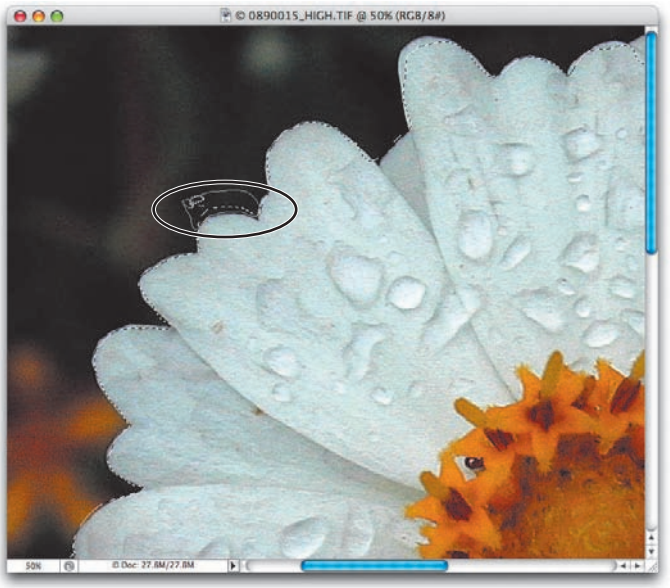


FIGURE 2.36
It's hard to be accurate when tracing with the Lasso. By applying the Shift or Option/Alt key modifiers after a selection path is closed, you can add or subtract pixels to the selected area.

FIGURE 2.37
When using the Lasso tool, the Option/Alt key modifier allows you to add curves to a closed selection path made with the Polygonal Lasso tool.

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Adding or subtracting pixels in this way can be an extremely useful way to fine-tune selection paths made with the Rectangular or Elliptical Marquee tools. As you now know, lining the selection path up to the exact edge of an object can be rather difficult with these tools. If your path winds up too far inside or outside an object, you can use the Expand or Contract command to add or subtract pixels around the entire selection (see Figure 2.38).

FIGURE 2.38
This Elliptical Marquee tool selection is positioned too far away from the edge of the intended selection area (top). Contracting 14 pixels positions the selection path right to the edge (bottom).

The Spacebar Modifier

When selecting with the Rectangular or Elliptical Marquee tools, you can move a selection path as you draw it by holding down the spacebar. This allows for greater precision when selecting geometric objects and can eliminate the need for modifying with the Expand and Contract commands.

The Grow/Similar Commands

You can also expand an existing selection by applying either the Grow or the Similar command. These commands can be applied to any type of selection, but they are best used to expand those you've made with the Magic Wand tool. Each command adds pixels to your selection based on the current Tolerance setting.

Choose Select ➢ Grow to add only *contiguous* (adjacent) pixels to an existing selection. To add both *contiguous and noncontiguous* pixels to a selection, choose Select ➢ Similar (see Figure 2.39).

The difference between the two commands is comparable to making a Magic Wand selection with the Contiguous option turned on or off.

For example, if you click in the sky area of the photo shown in Figure 2.39 with the Magic Wand Tolerance level set to the default 32, you wind up selecting some of the sky but not all of it. Without changing the Tolerance level, you can expand the range of the Magic Wand by applying the Grow or Similar command. If the Grow or Similar command does not complete the sky selection, try raising the Tolerance level and applying the command again.

Figure 2.39
The effect of the Grow and Similar commands. (a) The original Magic Wand selection. (b) The Grow command applied. (c) The selection with the Similar command applied. (d) Raising the Tolerance level and applying the Grow command again completes the sky selection perfectly.

Changing a Selection's Edge

Another way to modify selections is to alter the edge of the selection path. Photoshop contains several menu commands as well as a new Refine Edge feature that allow you to make edge adjustments. The command options include a Border command for converting a selection path to a soft, border-only selection; a Smooth command for simplifying detailed selections and rounding sharp corners; a Feather command for softening edges; and an Invert command for reversing the selection area. The new Refine Edge command allows you to apply both a soft and smooth edge to a selection all at once.

Refine Edge

The new Refine Edge dialog box is excellent for cleaning up a selection of an object that you'd like to remove from its background. You can adjust a selection path by using the Refine Edge dialog box (see Figure 2.40). Click the Refine Edge button in the Options palette to access the dialog, or choose Select ➢ Modify ➢ Refine Edge.

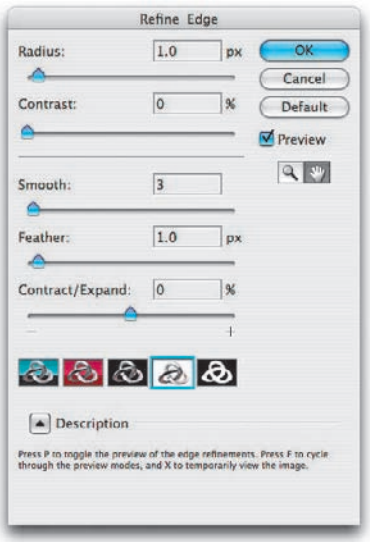


Figure 2.40
The Refine Edge dialog box

The Refine Edge dialog box contains the following adjustment options:

Radius improves the selection edge in areas with soft transitions or fine details.

Contrast makes soft edges crisp and removes fuzzy edges along the selection edge. It also removes artifacts that are created by increasing the Radius setting.

Smooth reduces any "hills and valleys" in the selection and creates a smoother outline.

Feather adds a soft-edged transition between the selection edge and the surrounding pixels. Larger values create softer transitions.

Contract/Expand expands or contracts the boundaries of the selection.

At the bottom of the dialog, you can choose a method for previewing Refine Edge adjustments. Options include Standard, Quick Mask, On Black, On White, and Mask. In Standard mode, refer to the marching ants in order to preview your Smooth and Choke adjustments. For a better preview of Feather adjustments, choose On White or Mask mode (see Figure 2.41).

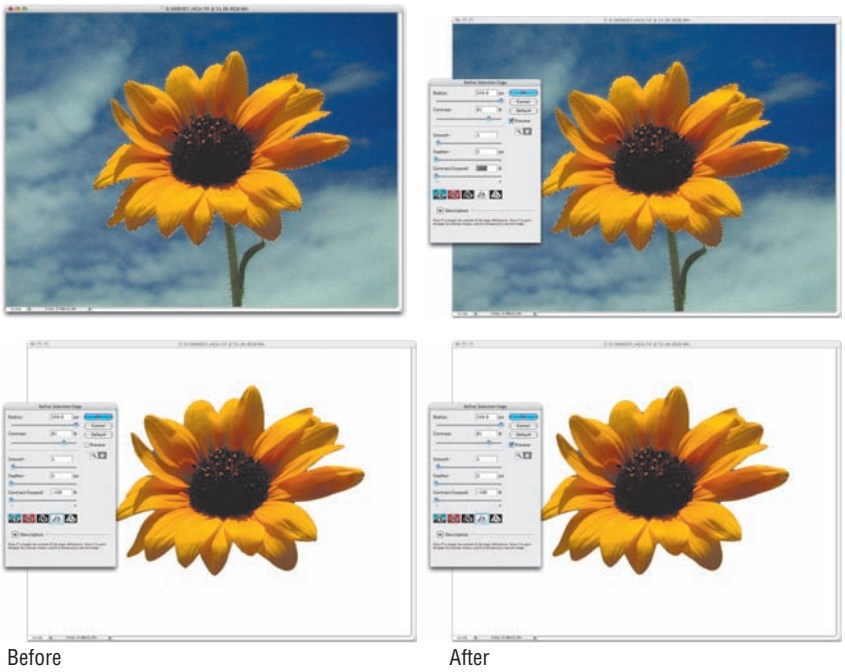


FIGURE 2.41
Here's what the original selection looked like before applying Refine Edge (top left). Previewing Refine Edge settings with a standard selection border makes it difficult to see a difference in the selection path (top right). Previewing Refine Edge settings on white makes it easier to clean up a selection path for an object you'd like to remove from its background (bottom left and bottom right).

BORDER

By applying the Border command to a selection, you can make specific color adjustments to the edge of an image selection.

To apply the Border command, select an object, such as the coffee shown in Figure 2.42 (selected with the Magic Wand), and choose Select ➢ Modify ➢ Border. Enter a pixel width amount in the dialog that appears and click OK.

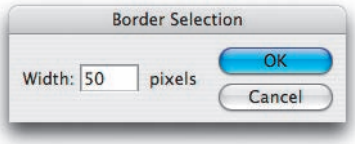


FIGURE 2.42
The Border Selection dialog box

After the Border command is applied, the selection path automatically takes the shape of the border width you've entered in the dialog box. You can then add a new Hue/Saturation adjustment layer by choosing Layer ➢ New Adjustment Layer ➢ Hue/Saturation. Alternatively, you can choose the same option from the pop-up menu accessible by clicking the Create New Fill Or Adjustment Layer button at the bottom of the Layers palette. Use the controls in the Hue/Saturation dialog to adjust the color of the selected image's edge (see Figure 2.43).

SMOOTH

The Smooth command does just what its name indicates—it smooths out the edges of a selection path. This can be a great way to add rounded edges to a selection made with the Polygonal Lasso tool.

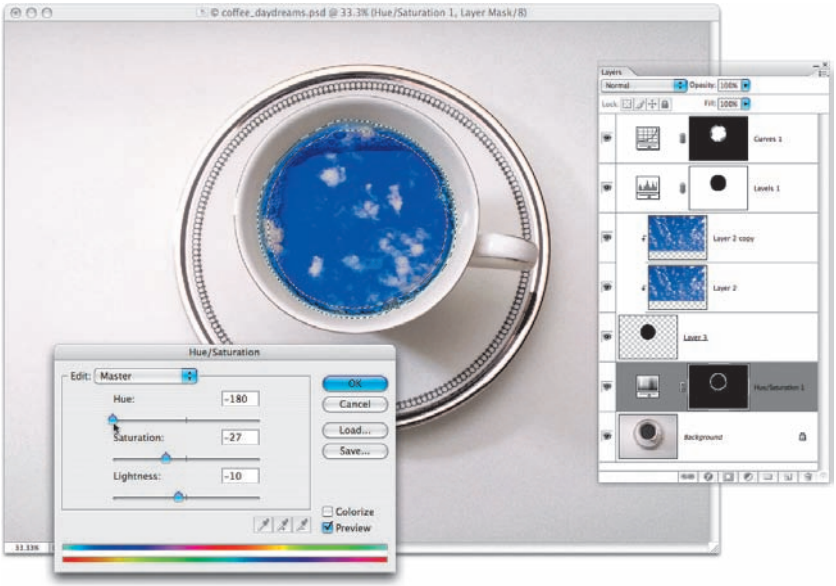
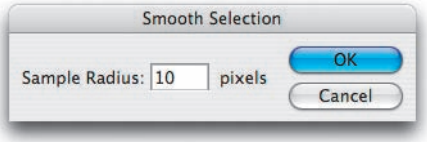


FIGURE 2.43
Applying a 50-pixel border selection (which expands the original outline selection 50 pixels outward from the center) and creating a new Hue/Saturation adjustment layer

For example, let's say the Polygonal Lasso is the selection tool you are most comfortable working with, and you've chosen it to select the rail car shown in Figure 2.44. The only drawback to tracing with this tool is that you cannot create any curves, which there are plenty of in this image. As a result, the final selection path contains a series of sharp-edged corners rather than smooth curves (see Figure 2.44).

FIGURE 2.44
Selecting the rail car with the Polygonal Lasso tool

To fix this, all you need to do is apply the Smooth command. With the Polygonal Lasso selection already made, choose Select ➢ Modify ➢ Smooth. Enter a pixel width amount in the dialog that appears and click OK.



The Smooth Dialog Box

Keep in mind that the more sharp edges there are in the selection path, the larger the sample pixel radius should be. Larger values mean smoother edges. In order to smooth the edges of the selection shown in Figure 2.45, I applied a 10-pixel radius.

Figure 2.45
Applying the Smooth command to this polygonal selection with a 10-pixel radius rounded the edges nicely.

Feather

By definition, a feathered edge is one that has a soft blur applied to it. You can apply these feathered edges without using the Blur filter. Feathered edges are great for creating custom glow and shadow effects, and can also be useful when blending image layers together. In Photoshop, you can apply a feathered edge to a selection by pre-feathering or post-feathering.

Pre-feathering Before making a selection with any of the marquee or lasso tools, you can apply a feathered edge to it. These are the only selection tools that allow you to pre-feather. By entering a pixel value in the Feather field of the Options palette before drawing with the tool, you are telling Photoshop to apply a feathered edge to the selection you are about to make. What's confusing about this is that your image won't look any different after making the selection. In order to see the soft, blurred edge, you must delete the selected area (as in Figure 2.46), make an adjustment (such as Levels or Hue/Saturation), or fill the selected area with a color.

Figure 2.46 Feathered selection edges become apparent only after deleting the selected image area, making an adjustment, or filling with a color. In this example, the image background was selected, feathered, and deleted. Pressing Delete/Backspace several times continues to soften the edge.

Post-feathering To apply a feathered edge to a selection that has already been made with any selection tool, choose Select ➢ Modify ➢ Feather, or press Option+⌘+D / Alt+Ctrl+D. Enter a feather radius in the Feather Selection dialog box that appears. Keep in mind that larger values result in softer edges. Click OK to close the dialog and apply the feather.

Feathering a selection after you've made it is the more common way to soften its edge, mainly because you can do it to any selection made with any tool.

Real World Scenario

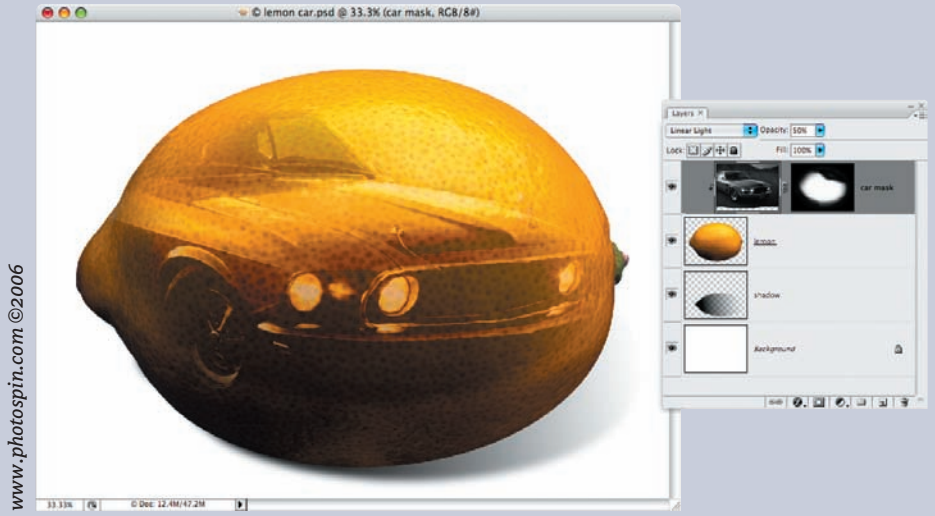
Feathered Masks

In the days before digital photography, a physical mask (such as a sheet of paper) was placed over unexposed photographic film in a darkroom to prevent stray or unwanted light from reaching specific areas of an image. This technique allowed the photographer to darken or completely hide a portion of the image. In Photoshop, you can achieve the same effect by adding variations of gray to a *layer mask*. You can also use layer masks to control which areas of an image are affected by layer adjustment effects (such as Levels, Hue/Saturation, and so forth).

The following image was created for use in a magazine article about shopping for a used car (and about how to know when you're buying a lemon). To illustrate this concept, I combined two images by using layers, masks, and feathered selections.

Before I explain *how* I used feathered masks to create this image, let me first point out *why* I used them. When using Photoshop to edit graphics for print design, you never want to permanently alter pixels unless you absolutely have to. To avoid making permanent edits, you should always use layer masks whenever possible.

In the example shown here, it was possible to create a feathered mask by adding a feathered edge to a selection when working in the masked portion of the layer.



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With the car image layer hidden, I made the original selection of the lemon by ⌘/Ctrl+clicking the transparent layer. The next step was to reduce the selection by choosing Select ➢ Transform Selection. Holding down Shift to constrain the overall proportions and Option/Alt to scale from the center, I reduced the selection by about 20%. Then, using the Feather command, I applied a 100-pixel feather. I then selected the car layer, made it visible again by clicking the eye icon, and added a layer mask by clicking the layer mask icon at the bottom of the Layers palette. Doing so applied a feathered mask to the image. This is what is called *nondestructive editing*.

Invert

Sometimes when you're attempting to select a detailed object, it can be easier to select the object's background first and then invert the selection path. Although this may sound like a backward way to work (and it is), it can get you the end result you're looking for and that's all that matters.

For example, in order to select the detailed building shown in Figure 2.47, it makes more sense to select the surrounding white background area with the Magic Wand tool and invert the selection.

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FIGURE 2.47
Selecting the background with the Magic Wand tool is easier than trying to select the image.

With the background area selected, choosing Select ➢ Inverse, or pressing Shift+⌘+I / Shift+Ctrl+I, reverses the selection and—presto! The detailed foreground object is now selected (see Figure 2.48).

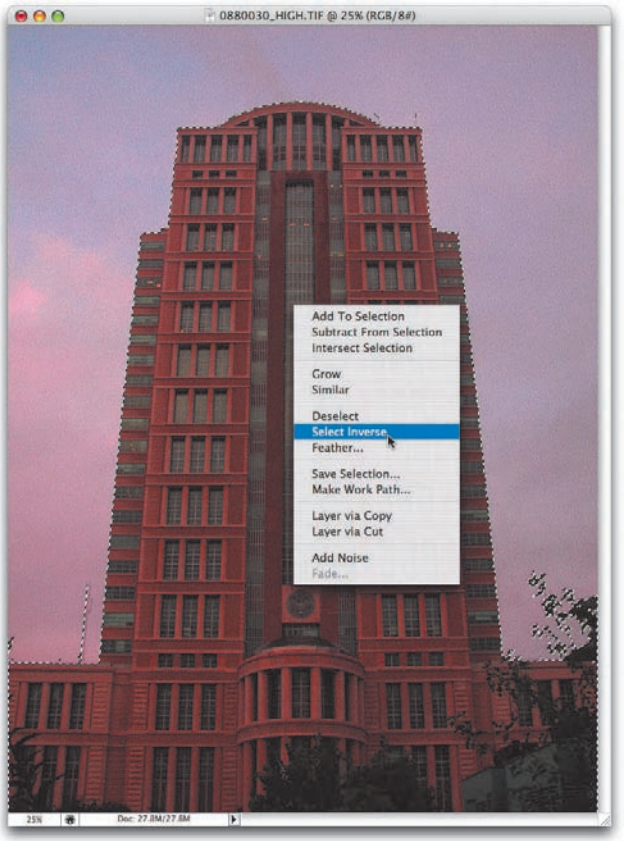

FIGURE 2.48
The easiest way to select the image is to invert the background selection.

Saving Selections with Paths and Channels

With Photoshop, you can also save and load your selections as an alpha channel or as a path. This can be especially useful when making detailed selections that you might want to use again.

Saving a Selection as an Alpha Channel

If the image that you're editing requires you to make a complicated selection, it's always a good idea to save it just in case you need to use it again. For example, in the image shown in Figure 2.49, it was necessary to select the saw in order to apply different image adjustments to the foreground and background areas.

Making this selection was a tedious task, to say the least. The Magic Wand would not recognize the inlets around the saw, even after I adjusted the Tolerance setting. It would be too time-consuming to draw a path around the saw; therefore, I made the selection with the Magnetic Lasso. Thinking ahead, I also saved the selection as soon as I completed it. I didn't want to go through the tedious process of making this selection all over again should I need it later.

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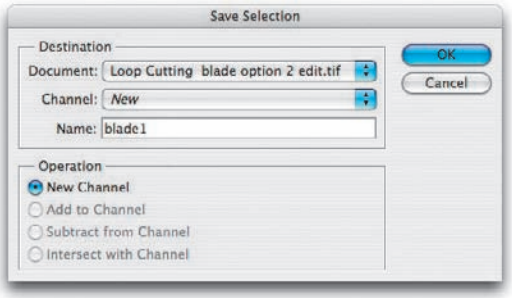
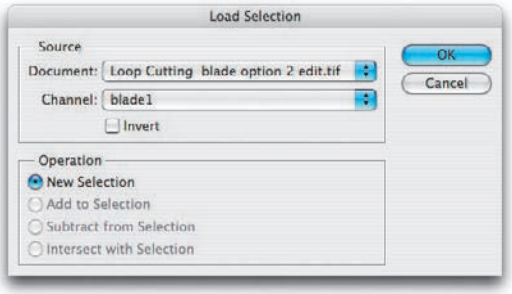
FIGURE 2.49
It's always a good idea to save detailed selections like the one shown here.

To save a selection, choose Select ➢ Save Selection. In the dialog box that appears, enter a name for the selection and click OK. The selection is stored as an alpha channel, accessible in the Channels palette. Alpha channels remain in the document until you manually delete them from the palette.



Any time you want to retrieve a saved selection, choose Select ➢ Load Selection. Choose the selection from the drop-down list in the Load Selection dialog box and click OK. Photoshop displays the selection path exactly as you saved it.



Saving and Loading a Selection from the Channels Palette

Alpha channels are essentially saved masks. To save a selection as an alpha channel from the Channels palette, make your selection, display the Channels palette (Window ➢ Channels), and choose New channel from the palette menu. In the dialog box that appears, choose whether the color displayed in the channel should indicate the masked area or the selected area. Choosing Masked Areas applies a red tint over the image when the channel is made visible in the palette. Choosing Selected Areas displays no color at all.

Click OK to exit the dialog and then click the eye icon next to the alpha channel in the palette to make it visible. If you chose Masked Areas in the dialog, the red tint should appear over your entire image. Press Delete/Backspace to remove the tint from the selected area and save the selection as a mask in the alpha channel. If you chose Selected Areas in the dialog, press D to set the default colors of black foreground and white background, and then press Option+Delete / Alt+Backspace to fill the selection with the foreground color (black). The selection area fills with a red tint in the alpha channel. Click the eye icon again to hide the mask.

You can then load the saved selection by ⌘/Ctrl+clicking on the alpha channel icon in the Channels palette.

You can store multiple selections in a document this way and access them at any time. Also, if you open the dialog with a selection already made, you can gain access to additional options that allow you to use the Add To, Subtract From, or Intersect features with the selection that you chose from the menu. You also have the option to invert a selection as you load it. In the Load Selection dialog box, choose the saved selection from the menu, click the Invert option, and click OK.

Working with Paths and Selections

Using the Pen toolset, you can trace portions of an image and store them in the Paths palette. You can then create selections based on saved paths. This means that working with paths gives you the ability to save difficult selections in a document—similar to working with alpha channels and masks.

To create a path, start out by pressing P to access the Pen tool, and then click the Paths option in the Options palette (see Figure 2.50). If you forget to click this option, Photoshop creates a vector mask (the default setting) when you trace with the Pen.

FIGURE 2.50
Click the second Pen tool option (Paths) in the upper left of the Options palette.

Locate a starting point to begin tracing the image. Click and drag to create a series of connecting points that result in an outline of the image. Clicking with the Pen creates a point, and dragging with the mouse creates a curve in relation to the previous and next points placed on the path. Every curve contains its own set of control handles that can also be adjusted. Points, segments, and control handles can also be moved and modified by using the Direct Selection tool. To temporarily access the Direct Selection tool and edit the path as you draw it with the Pen, hold down ⌘/Ctrl.

You can create a corner point by using the Pen tool to click on an anchor point of a curved path immediately after drawing it. Then press the Option/Alt key and drag to create a new control handle that is facing in a different direction. Click and drag again to create the next curved segment of the path.

The cursors for the Pen tool change as you position them over different points and segments of a path and as you add certain key modifiers (see Table 2.1).

TABLE 2.1: Pen Tool Cursors

	Start a new path.
	Create a corner point (hover over any new point and hold down Option/Alt).
	Add an anchor point (hover over any path segment).
	Close a path (hover over the first point of the path).
	Delete an anchor point (hover over any point).
	Convert a direction point (hover over any point or direction handle between two segments and press Option/Alt).
	Join two paths (select an endpoint of one path and hover over the endpoint of another).

Adding and Deleting Points

You can add points to a path by using the Add Anchor Point tool. Doing so allows you to add intricate curves, corners, and bends to your outline path. To temporarily access the Add Anchor Point tool as you draw with the Pen, hover over any path segment and click.

You can delete points by using the Delete Anchor Point tool. To temporarily access the Delete Anchor Point tool while working with the Pen, hover over any point and click. Keep in mind that deleting points can drastically change the appearance of a path.

It is also possible to delete an anchor point by selecting it with the Direct Selection tool and pressing the Delete/Backspace key. Doing so results in an open path, whereas using the Delete Anchor Point tool does not.

Converting Point Direction

Use the Convert Direction Point tool to change the direction of a selected point's curve on an existing path. Click any existing point to reset the curve handles. Click and drag the handles to change the curve. To temporarily access the Convert Direction Point tool while working with the Pen, hover over any point or direction handle between two segments and press Option/Alt.

Joining and Closing Paths

To join two line segments or open paths, select one with the Direct Selection tool, and then switch to the Pen tool and click the endpoint you would like to merge. Hover the Pen tool cursor over the endpoint of another path until you see the Join Two Paths cursor appear, and then click. The two paths are now joined!

To close the open path, click one of the remaining two endpoints with the Pen tool. Hover the Pen tool cursor over the other endpoint until you see the Close A Path cursor appear and click.

Naming and Saving Paths

Any time you begin drawing a path with the Pen tool, Photoshop creates a work path in the Paths palette. You can name the path by choosing Save Path from the palette menu (see Figure 2.51). When the Save Path dialog box appears, enter a name in the field provided and click OK. You can also access the Save Path dialog by double-clicking the work path in the palette.

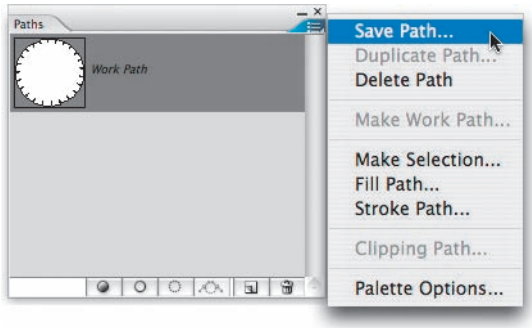


Figure 2.51
Choose Save Path from the Paths palette menu.

You can save more than one path in the Paths palette. To create a new path, choose New Path from the palette menu or click the New Path button at the bottom of the palette. When choosing New Path from the menu, the Save Path dialog box appears; it does not appear when clicking the New Path button. The only way to access the Save Path dialog by using the latter method is to Option/Alt+click the New Path button.

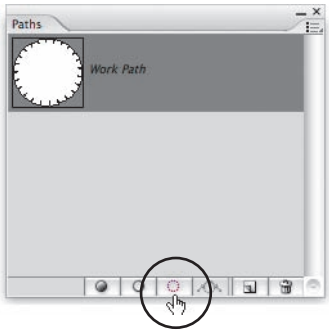
Loading a Path as a Selection

One of the major benefits to using paths is that you can convert them into selections. Essentially, paths are extremely accurate saved selections that can be edited at any time by using the Pen toolset and Direct Selection tool. After you've created a path, there are several ways you can base a

selection around the path shape. First, select the path in the palette; then use any one of the four following conversion methods:

- Choose Make Selection from the Paths palette menu.
- Click the Load Path As Selection button at the bottom of the Paths palette (see Figure 2.52).
- ⌘/Ctrl+click the path in the palette.
- Press ⌘+Return / Ctrl+Enter

FIGURE 2.52
Click the Load Path As Selection button at the bottom of the Paths palette.



CONVERTING A SELECTION INTO A WORK PATH

If you've made a selection by using another tool—such as the Magnetic Lasso or the Quick Selection tool—and you'd like to convert it into a path, click the Make Work Path From Selection Path button at the bottom of the Paths palette (see Figure 2.53).

FIGURE 2.53
Click the Make Work Path From Selection Path button at the bottom of the Paths palette.

You can also choose Make Work Path from the palette menu. By converting a selection into a path, you're basically telling Photoshop that you'd like to convert a soft-edged selection into a hard-edged one. When using the palette menu command for converting, a dialog box appears that allows you to apply a Tolerance setting (see Figure 2.54). This setting tells Photoshop exactly where the edges of the hard-edged path should be. Smaller Tolerance settings ensure a more accurate path conversion. It's best to leave this setting at the default value of 2, or even reduce it to 1.

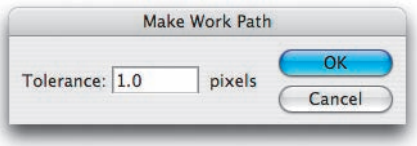


FIGURE 2.54
Always use low Tolerance settings in the Make Work Path dialog box.

Note that the Make Work Path From Selection Path button uses whatever Tolerance setting was applied last. If you'd like to access the dialog when using this conversion method, simply Option/Alt+click the button.

Although the Make Work Path From Selection command is a quick and easy way to generate a path, the results can often produce jagged edges or rounded corners. When this happens, you must modify the path with the Pen tool. You may find that it takes you longer to modify paths generated from selections than it does to draw them from scratch.

USING CLIPPING PATHS

In the past, the only way to silhouette an image and place it in a page layout application (such as QuarkXPress or Adobe PageMaker) was to outline the image with the Pen tool and save the work path as a clipping path. The image would then need to be saved as either a TIFF or an EPS file in order for the page layout application to recognize the path. When the TIFF or EPS was placed in a layout over a colored box (or another placed photo), the image would appear extracted from its original background.

There were two problems with this method:

- Drawing clipping paths can be a painstakingly slow process.
- Clipping paths are vector based and contain harsh, overly crisp edges that look terrible when the layout is printed. To get around this, some designers would create composite backgrounds entirely in Photoshop rather than have to deal with harsh-edged clipping paths in QuarkXPress or PageMaker.

Nowadays, layout applications such as InDesign and QuarkXPress allow you to place transparent images into your layouts, making the need for clipping paths obsolete. QuarkXPress 7 now allows you to place transparent TIFFs, and all versions of InDesign accept transparent TIFFs, PSDs, and PDFs.

In a modern day print/production workflow using Photoshop CS3 along with QuarkXPress 7 (or later), or any version of InDesign, it makes more sense to remove an object from its background in Photoshop and place the transparent image in your layout. By doing so, you can maintain soft edges and avoid the painstakingly slow process of having to draw clipping paths.

However, if you're unfortunate enough to still be using older versions of QuarkXPress or any version of PageMaker, you'll have to rely on clipping paths, or else design your entire background composite in Photoshop. To save a work path as a clipping path, double-click it from the Paths palette and give it a name. If you're going to save the image as an EPS (rather than a TIFF), choose

Clipping Path from the Paths palette menu in order to display the Clipping Path dialog box. If there's more than one path saved in the document, choose the one you'd like to convert from the Path menu. To speed up your printing time on a PostScript printer, choose a Flatness setting between 3 and 5. Higher flatness values decrease printing time, but also add choppier curves to the placed image. A setting between 3 and 5 is usually not noticeable and is therefore safe to use.

If you choose to save the image as a TIFF, both QuarkXPress and InDesign can recognize the path in the placed image without having to save it as a clipping path in Photoshop. If the image contains multiple paths, you can choose which path you'd like to apply from within QuarkXPress or InDesign.

Using the Extract Filter

If you've read the previous sections of this chapter, you now know that there is more than one way to extract an image from its background. You can use the Magic Eraser to remove simple, solid-color backgrounds or use the Background Eraser to remove detailed backgrounds. But there is also one other more-advanced tool that you can use to extract an image from its background: it's called the Extract filter.

Depending on the image you are working with, the Extract filter may require a little more effort, but the results are always worth it. I find it to be a much better tool than the Background Eraser for making detailed extractions. For example, the butterfly shown in Figure 2.55 with all of its soft fringe edges is a perfect image to use with the Extract filter .

FIGURE 2.55
The Extract filter is a great tool for separating detailed objects, such as this butterfly from its background.

The Extract filter works like a cross between the Magnetic Lasso and the Magic Eraser. It allows you to outline an object and extract it from its background. You can access the Extract filter by choosing Filter ➢ Extract. This launches a whole new interface, complete with a large preview window and its own set of tools (see Figure 2.56).

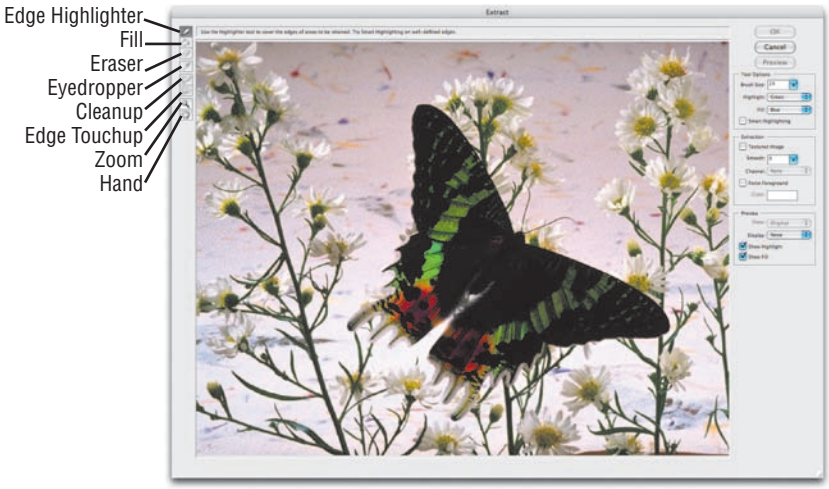


FIGURE 2.56
The Extract Filter interface

When you launch the Extract dialog box, the image layer you currently have selected appears in the preview window. You can then indicate what the foreground and background areas are by outlining the image with the Edge Highlighter tool (see Figure 2.57).

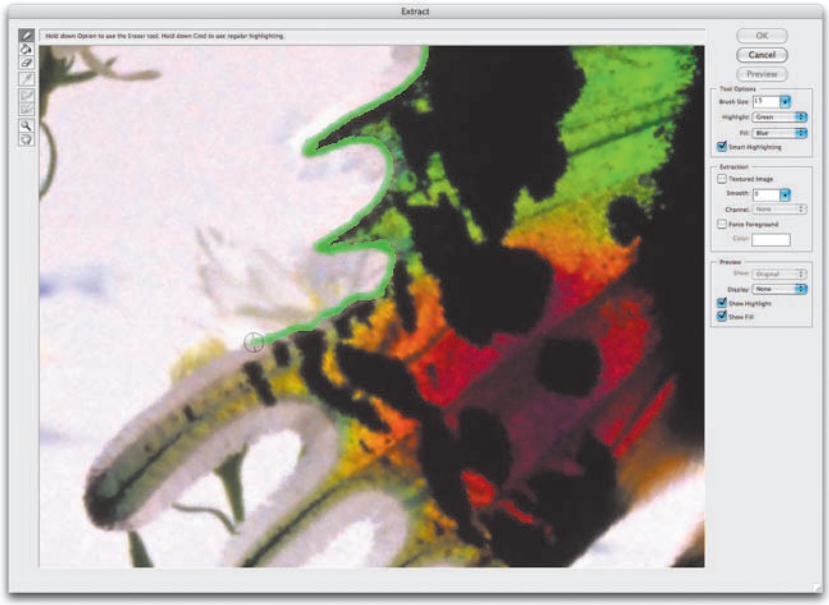


FIGURE 2.57
Use the Edge Highlighter to mark the edges of the areas you want to retain.

By enabling the Smart Highlighting option under Tool Options, you can limit the amount of highlight paint that covers a well-defined edge. Doing so ensures a much cleaner and more accurate extraction. In addition, Smart Highlighting automatically recognizes well-defined edges, which can help guide your path as you draw.

Select First and Then Extract

To limit what appears in the dialog preview window, select an area of the photo with one of the marquee selection tools before launching the Extract filter.

By default, the Edge Highlighter color is bright green. However, if this color conflicts with the photo you are working with, you can choose Red or Blue from the Highlight drop-down list, or choose Other to select a different color with the Color Picker.

You can change the brush size by entering a different pixel amount in the Brush Size field located under Tool Options. You can also change the brush size by clicking the arrow next to the field and using the pop-up slider, or by pressing the left and right bracket keys. Use smaller brush sizes (along with Smart Highlighting) for better extraction results.

As you outline with the Edge Highlighter tool, you can navigate around the image by using the dialog's Zoom and Hand tools. If you prefer, you can hold ⌘/Ctrl while pressing the plus or minus key (use ⌘/Ctrl++ to zoom in, and ⌘/Ctrl+– to zoom out). You can also press and hold the spacebar to temporarily access the Hand tool.

When you've finished marking the edges of the areas you want to retain, select the Fill tool and click inside the outlined image area (see Figure 2.58). Photoshop fills the image area with the chosen fill color. The default fill color is blue, but if this color conflicts with the photo you are working with, you can choose Red or Green from the Fill drop-down list, or choose Other to select a different color with the Color Picker.

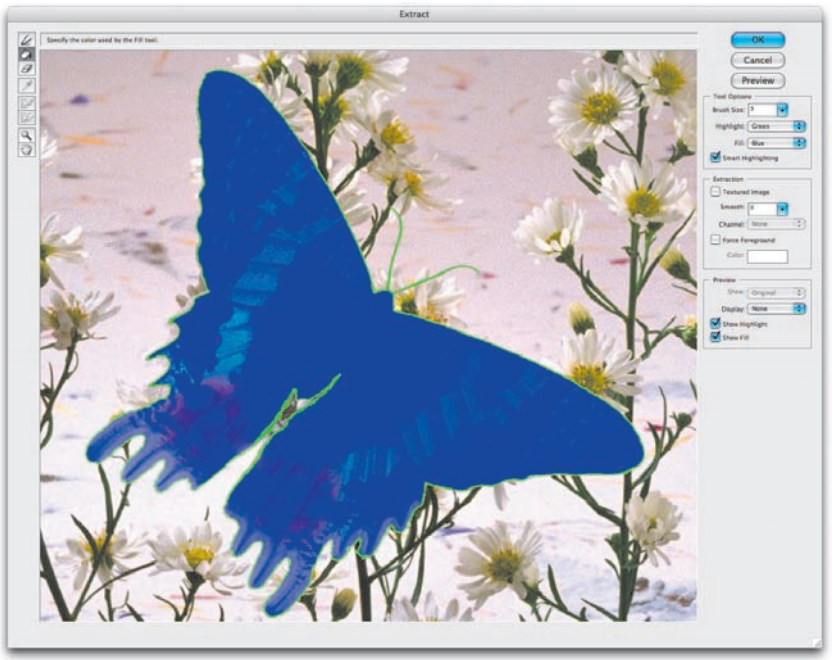


Figure 2.58
Photoshop fills the image area with the chosen fill color.

Click the Preview button in the upper right of the Extract dialog box to see the extraction before it is applied (see Figure 2.59, top). The Display drop-down list allows you to choose whether to view the highlight and fill in addition to the extraction.

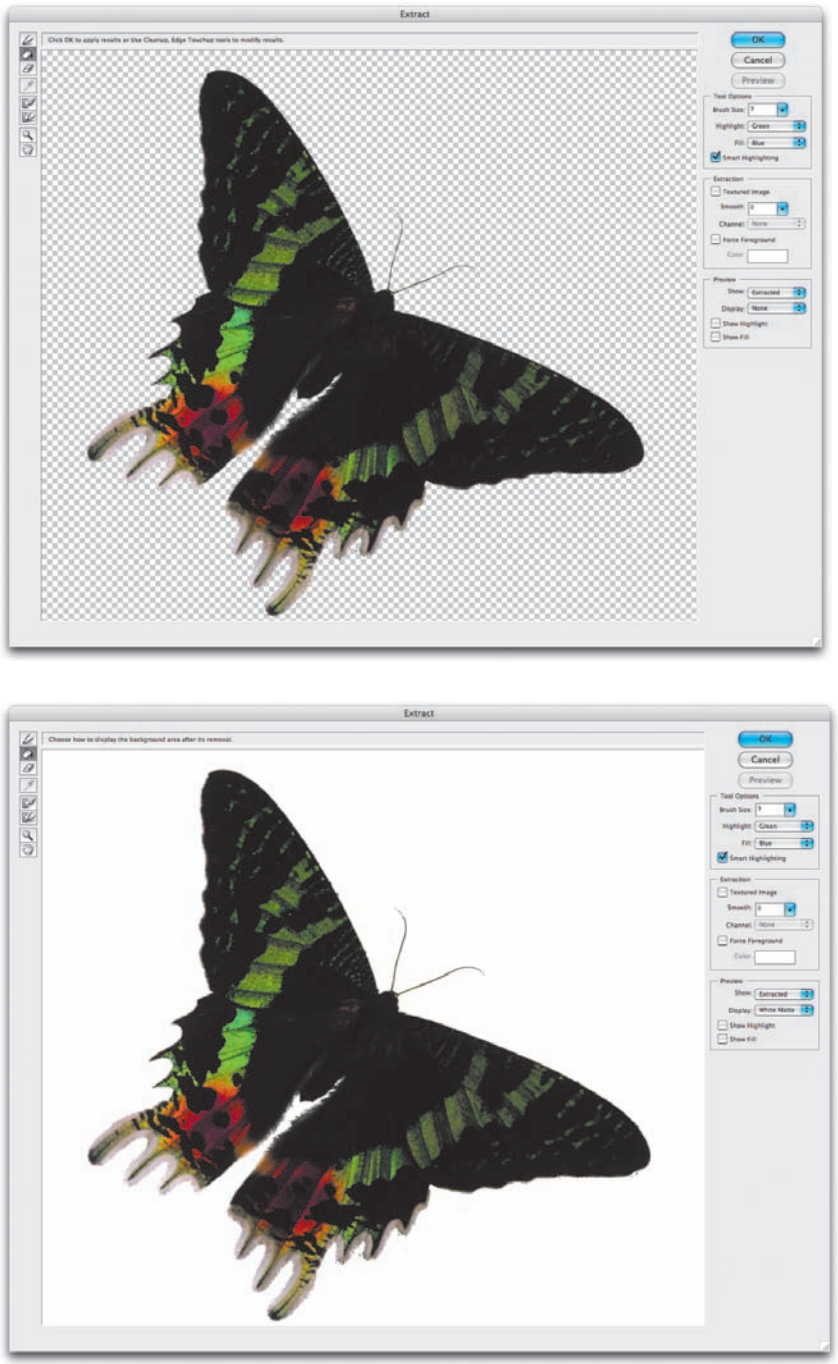


FIGURE 2.59
Click the Preview button to see the extraction before it is applied. By default, it is displayed over the transparent gray-and-white checkerboard pattern (top). The white matte background clearly reveals any remaining pixel artifacts and fringe colors (bottom).

The Display drop-down list allows you to choose from several display options for the selection area background. The default None setting displays the selection over the current transparency display preference. Unless you've changed it (as described in "The Magic Eraser" section earlier in the chapter), this displays the default gray-and-white checkerboard pattern. Previewing over this background can make it very difficult to see any unwanted small pixel artifacts that didn't get erased. It also makes it difficult to see any unwanted fringe pixels remaining around the edges of the object. To clearly see what was erased and what wasn't as you're previewing an extracted selection, the best background color choice is White Matte (see Figure 2.59).

If necessary, you can fine-tune your selection by using the various cleanup tools and can and update it by clicking Preview. Here are some tips for improving your extraction:

- To edit the outline edge of your image as you draw, temporarily switch to the Eraser tool. Subtract from the selection by holding down Option/Alt and painting over it with the Edge Highlighter tool.
- After filling the outlined image area and clicking the Preview button, smooth the edges of the mask to make them more transparent by painting over them with the Cleanup tool. Hold down Option/Alt to make the edges more opaque. To control brush softness/hardness, press the numbers 1 through 9 on your keyboard—1 being the softest and 9 the hardest.
- Clean the edges of the mask by drawing over them with the Edge Touchup tool. Hold down ⌘/Ctrl to move the edge. Press 1–9 to control the pressure.
- Enable the Textured Image if the foreground image is too similar in color to the background but differs in texture. Doing so tells Photoshop to look for differences in texture as well as color, which can produce a much better result.
- For objects that are too small and intricate to trace around, cover the entire subject with the Edge Highlighter tool, and then turn on the Force Foreground option. Click on the color of the object with the Eyedropper tool to tell Photoshop what areas to extract.

After your selection is complete, click OK to apply the extraction (see Figure 2.60). If the Layers palette is not visible already, choose Window ➢ Layers. Notice that the object now resides on a single, transparent layer extracted from its former background. To save your extracted image without overwriting the original photo, choose Save As and name the document something different.

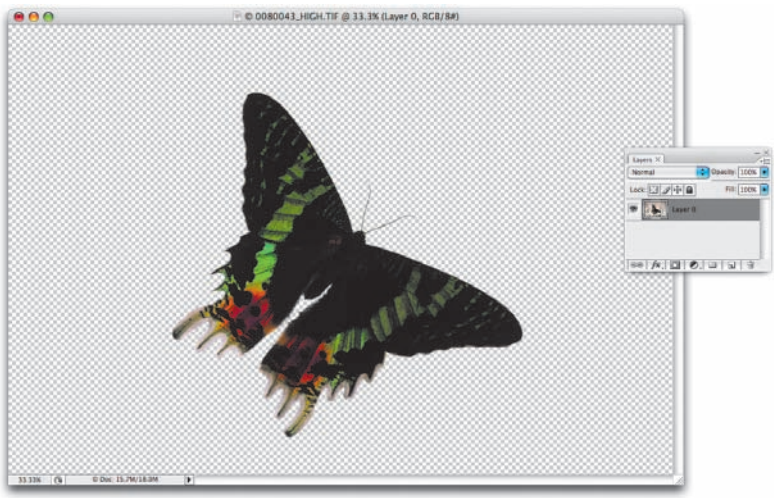


FIGURE 2.60
The completed extraction

The Bottom Line

Identify Which Selection Tool to Use for the Task at Hand As you edit images for print design, you are often faced with various selection tasks—everything from selecting an object and removing it from its background, to selecting and editing a small part of a much larger image. Some selections are easier to make than others. Using what you learned about all of the selection-making tools in Photoshop CS3, identify which tool is best for the selection task at hand.

> **Master It** Determine the type of selection you need to make (for example, a background or foreground object, a detailed or solid-color area, a high-contrast or low-contrast image). Based on what you now know about all of the selection tools available in Photoshop, identify which tool is best for the selection task at hand.

Add to and Subtract from a Selection Path In many instances, it can be too difficult to select an entire object or region of a photo by using just one method or tool. In fact, good selections are often made in steps. This requires making your initial selection and then altering it by using additional tools, commands, and key modifiers.

> **Master It** Open an image and make a selection with any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter. Locate some areas of the image that you would like to add to or subtract from the selection.

Apply a Feathered (Soft) Edge to a Selection Another way to modify selections is to alter the edge of the selection path. Photoshop contains a Feather command for softening edges.

> **Master It** By definition, a feathered edge is one that has a soft blur applied to it. Open an image, make a selection by using any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter, and apply a soft edge to the image. Use either the pre- or post-feathering methods described in the chapter.

Save and Load Selections With Photoshop, you can also save and load your selection as an alpha channel or as a path. This can be especially useful when making detailed selections that you might want to use again.

> **Master It** Open an image and make a complicated selection by using any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter. Save the selection by using either method described in this chapter.

Identify When to Use the Extract Filter There is more than one way to extract an image from its background in Photoshop. You can use the Magic Eraser to remove simple, solid-color backgrounds or use the Background Eraser to remove detailed backgrounds. But for more-advanced extractions, you should use the Extract filter.

> **Master It** Open a photo containing an image that you would like to extract from its background. Be sure to choose an image with loss of edge detail, such as a head shot containing fly-away hair. Remove the image from its background by using the Extract filter.

Chapter 3

Working with Brushes

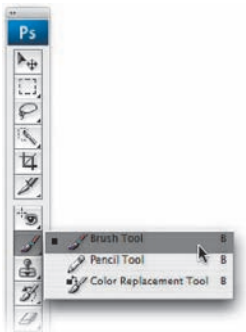
Many creative professionals consider Photoshop's brushes to be tools solely used for creating digital paintings or photo-realistic illustrations. There is no doubt that combining brushes with a little imagination and a lot of artistic talent can produce some stunning digital artwork. However, brushes can also be put to good use in a much less glamorous day-to-day print/production environment. In addition to their role as important creative tools, brushes can help you retouch photographic print images as described in Chapter 6, "Retouching and Enhancing for Print." They can also be used along with layer masks to combine images and control adjustments.

In this chapter, you will learn to:

- Customize and create your own brushes
- Save custom brush settings as presets
- Use brushes effectively with layer masks
- Restore with history painting

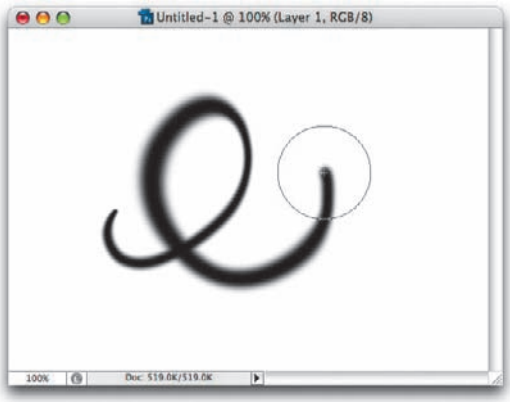
The Brush Tool

The Brush tool allows you to paint with pixels in Photoshop, something that can be very useful when retouching photos and working with layer masks. You can access the tool by clicking the Brush tool icon in the Tools palette or by pressing B on your keyboard.



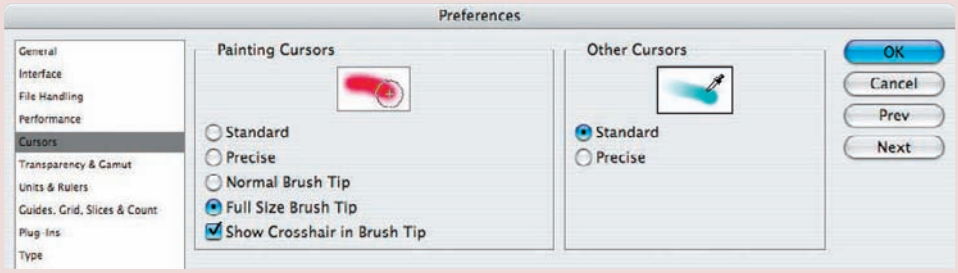
To use the Brush tool, select a layer or layer mask in the Layers palette, and then choose a brush from the preset list and click and drag in any direction. The brush behaves just like a traditional paintbrush. To help guide your brushstroke, Photoshop displays a circle icon that follows the cursor as you paint with the tool. The brushstroke appears onscreen in real time as you paint (see Figure 3.1).

FIGURE 3.1
As you paint, the circle cursor indicates the current position of the brush.



CURSOR PREFERENCES FOR BRUSH TIPS

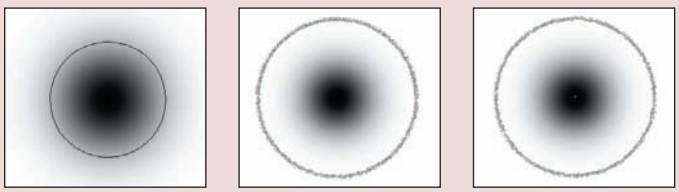
Photoshop CS3 contains two Painting Cursor Brush Tip preference options, both of which apply to the Brush tool. To access the Cursors panel, choose Photoshop ➢ Preferences ➢ Cursors (Mac) or Edit ➢ Preferences ➢ Cursors (Win).



Full Size Brush Tip Enabling this option causes the circle cursor to reflect the edge of the brush, where the brush will stop affecting the image, whereas Normal Brush Tip (the default setting) displays the halfway point at which the color will disappear gradually.

Show Crosshair in Brush Tip Enabling this option causes a small crosshair to appear in the center of the circle brush cursor. This can be especially useful when using the Full Size Brush Tip option, because it can help you visualize exactly where the center of the brush is when painting with such a large cursor.

Shown here, from left to right: a Normal brush tip, a Full Size brush tip, and a Full Size brush tip with crosshair:



Holding down Shift as you click and drag with the Brush tool allows you to constrain the applied brushstroke to 90° angles. To create a straight line at any angle with the brush, click to designate the starting point and Shift+click to designate the endpoint.

RESIZE THE BRUSH AS YOU PAINT

You can also increase or decrease the brush size in 10-pixel increments as you paint by pressing the bracket keys. Press] to increase and [to decrease.

The Brush tool also has its own set of options in the Options palette, including a Brush preset menu, size and opacity controls, a Mode menu, and airbrush capabilities (see Figure 3.2). The Options palette also includes a toggle control for displaying the Brushes palette. The Brushes palette contains options for working with a graphics pen and tablet (see the following "Graphics Tablet Pressure Sensitivity" sidebar) as well as options that allow you to edit or create brush presets (as discussed in the "Customizing and Creating Brushes" section later in the chapter). The lists of blend mode options available in the Options palette's Mode menu are the same as in the Layers palette blend mode menu (see Chapter 7, "Combining Image Layers"). To use these options, you must choose them from the Options palette before painting with the tool.

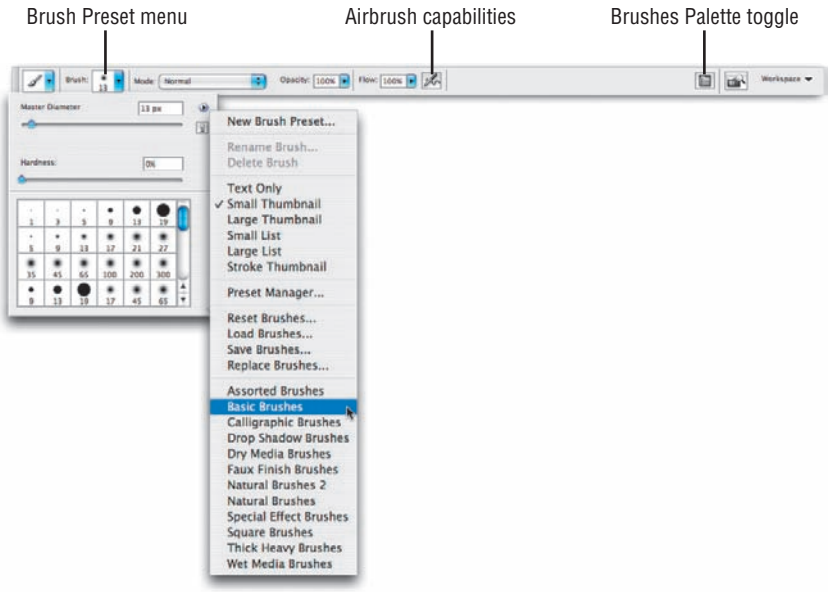


FIGURE 3.2
The Brush tool options

Graphics Tablet Pressure Sensitivity

To get the realistic look and feel of a traditional paintbrush, you should consider using a graphics pen and tablet. The various Control menus in Photoshop's Brushes palette (Figure 3.3) contain Pen Pressure options that allow you to take advantage of graphics tablet pressure sensitivity.

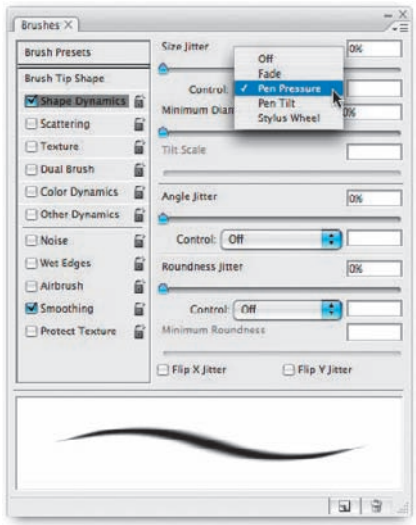


FIGURE 3.3
The Brushes palette allows a tablet to control various settings.

With these options enabled, you can let the applied pressure of the pen control the size, opacity, roundness, jitter, or scatter of the brushstroke, as shown in Figure 3.4. Note that these settings must be enabled in the Brushes palette in order to control them with pressure sensitivity. Pen Pressure must be selected from each option's corresponding Control menu.

FIGURE 3.4
Use Pen Pressure to control things like brush size, jitter, and scatter.

No Pen Pressure (drawn with a mouse)

Size Jitter and Roundness Jitter Pen Pressure enabled

Hue Jitter and Scatter Pen Pressure enabled

Brush Tool Presets

The Brush tool in Photoshop ships with several libraries of presets (also referred to as *sets*) that you can use when retouching print images. In addition, you can customize these presets and even create your own. For example, if there is a particular group of brush settings that you like to use when retouching headshots or any photograph of a person's face (see Chapter 6), you can base your brush on an existing preset and save it as a new preset. Doing so means that you have to click only once to restore your custom settings. This can be a huge time-saver, especially considering how many options there are in Photoshop's detailed brush engine.

There are two locations within the Photoshop interface where you can select brush presets (Figure 3.5). With the Brush tool selected, you can access presets by doing either of the following:

- Click the Brush Presets button in the Options palette to reveal a drop-down menu known as the Brush Presets Picker.
- Choose Window ➢ Brushes to display the Brushes palette, or click the Brushes palette toggle button in the Options palette. At the top-left of the dialog box, click Brush Presets to display the currently selected preset menu in the palette.

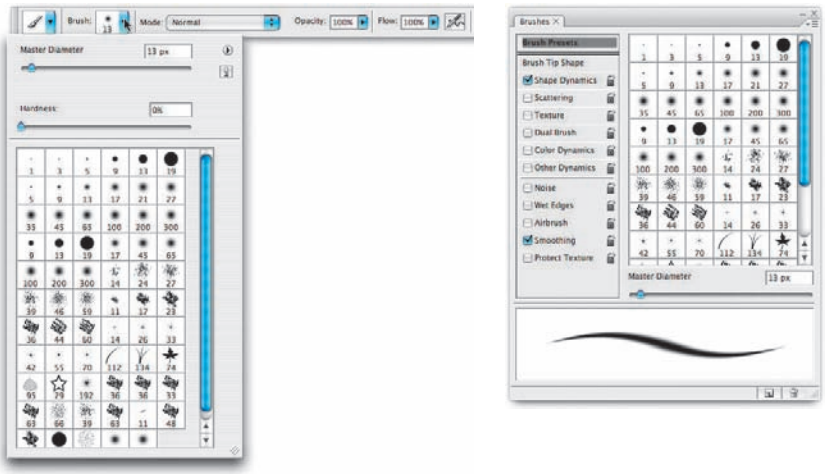


FIGURE 3.5
Access brush presets through the Options bar or the Brushes palette.

There's really no benefit to using one preset location over the other. I prefer working exclusively with the Brushes palette, because all the available brush settings are there along with the presets. This makes editing brushes based on presets much quicker and easier to manage (see the "Customizing and Creating Brushes" section later in this chapter).

By default, the preset menu in both locations displays the default set of brushes in a list with a thumbnail sample. With tool tips enabled in Photoshop's preferences (see Chapter 1, "Getting Started"), hovering the mouse over each thumbnail in the menu reveals the brush preset name. In the Brushes palette only, you can click any thumbnail in the list to view a sample stroke at the bottom of the dialog box. To view more thumbnails at a time, you must resize the menu window or palette by clicking and dragging the bottom-right corner (Figure 3.6).

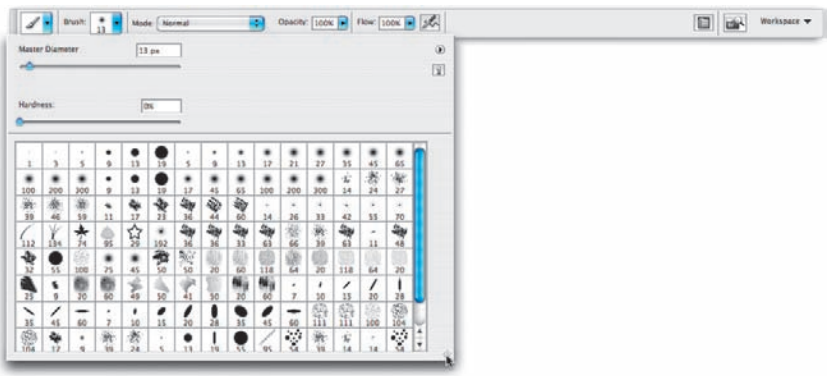
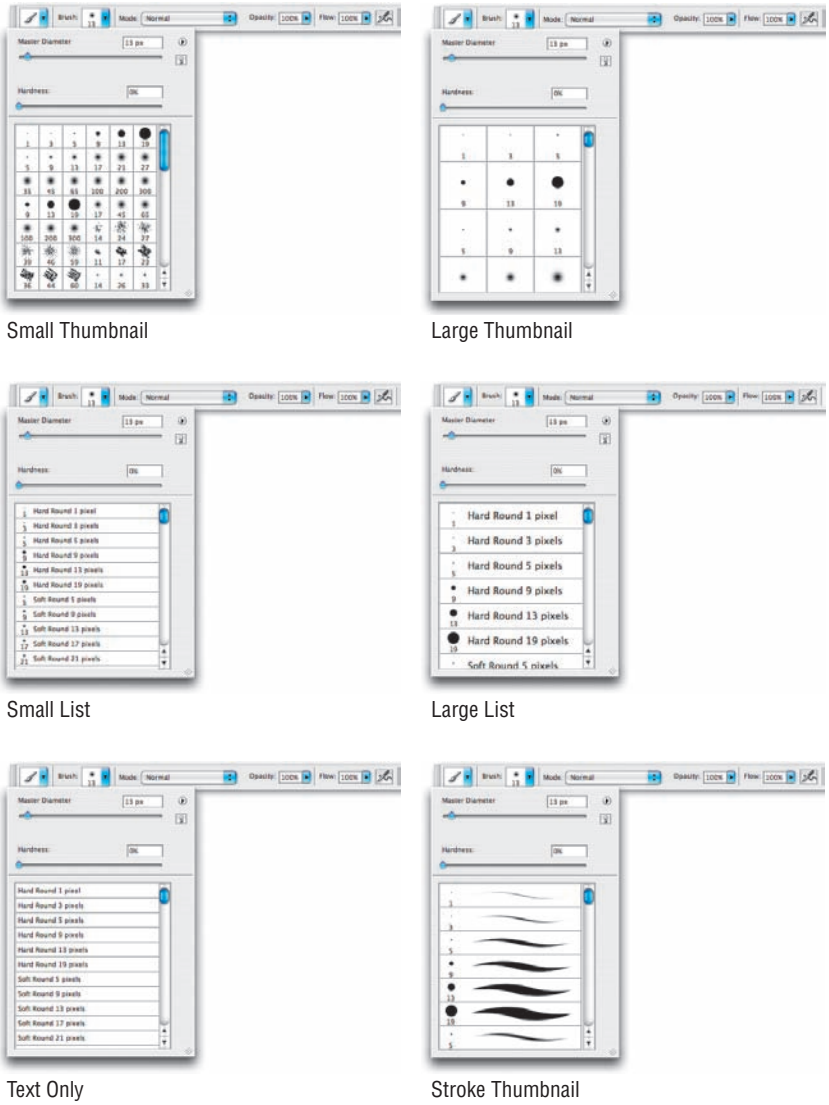


FIGURE 3.6
Make your brush picker as large as you need.

To change the way the brush presets are displayed, click the menu button to reveal the drop-down menu. Here you can choose to display the brush presets in small or large thumbnails, in small or large list view, as a stroke thumbnail, or as text only (see Figure 3.7).

FIGURE 3.7
Modifying the display of brush presets



In both locations, the flyout menu (accessible by clicking the arrow in the upper right of the Brush Presets Picker or the palette menu button in the Brushes palette) lets you select which of Photoshop's available brush presets to display (see Figure 3.8). Photoshop gives you the option to replace the current set with a new one or append the set, adding new presets to the list. Each new set you select is displayed in the menu list until you replace it or append it with another selection.

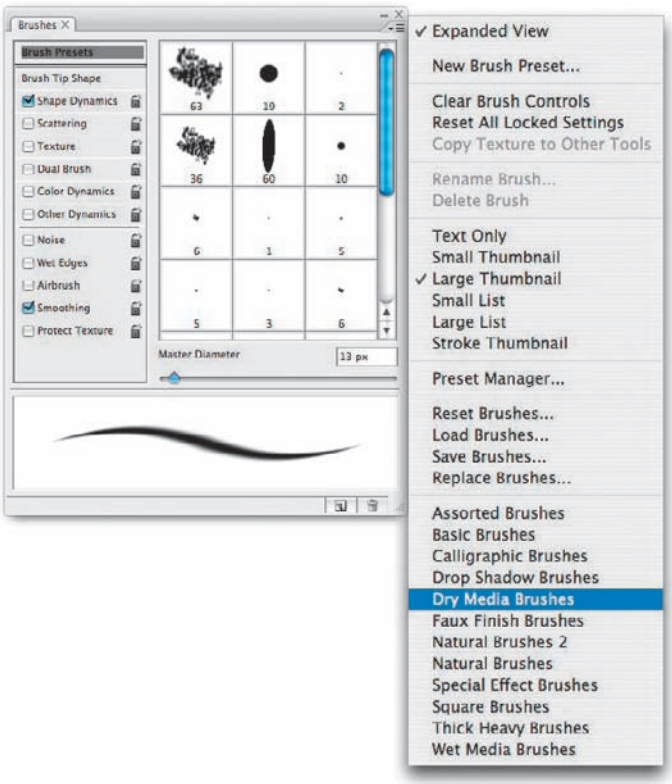


FIGURE 3.8
The palette menu in either location gives you access to all the available brush presets. Shown here is the Dry Media set displayed in the Brushes palette in Large Thumbnail view.

You can delete a selected brush by Control+clicking (Mac) or right-clicking with a two-button mouse and choosing Delete Brush from the pop-up menu (Figure 3.9). After clicking OK in the warning dialog box that appears, Photoshop removes the brush from the library list immediately.

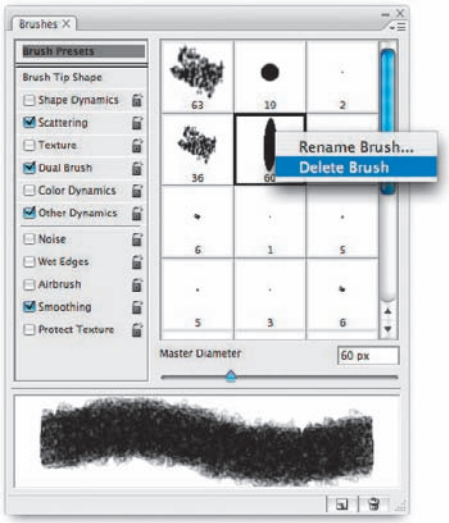


FIGURE 3.9
Deleting a brush

To save changes made to a library, choose Save Brushes from the flyout menu (or from the warning dialog described previously when resetting). Photoshop then displays the Save dialog box, where you can name the new library. If you choose not to save and proceed to apply the Reset Brushes command, all changes you've made to the brush presets will be lost.

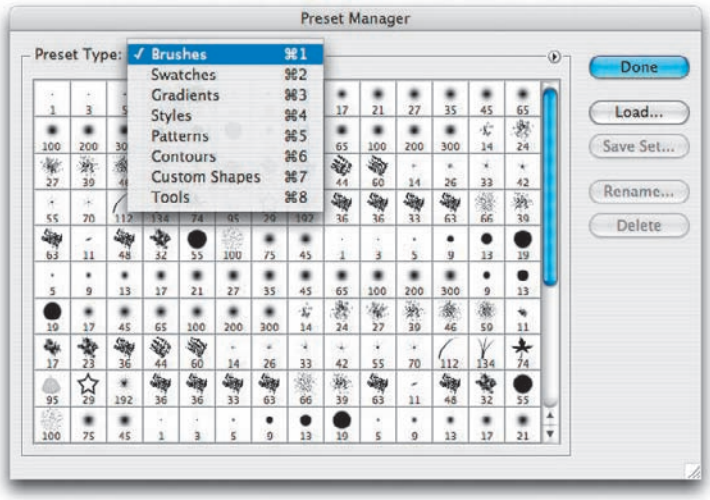
To restore deleted brushes to the library, choose Reset Brushes from the Brushes palette flyout menu. When resetting, a warning dialog box appears, asking whether you'd like to display the default brush library set, or add it to the currently displayed list of brushes by clicking Append. To commit to the change, click OK. Photoshop will then ask whether you'd like to save the changes you've made to the current library before resetting.

The Preset Manager

Photoshop contains presets for gradients, brushes, patterns, swatches, styles, contours, custom shapes, and tools. You can access these presets through related palettes, such as the Brushes or Swatches palettes, or the Tool preset menu in the Options palette. You can add to or customize any of these sets all at once by using the Preset Manager.

The Preset Manager dialog box (Figure 3.10) is accessible under the Edit menu, or from the flyout menu of any related palette. At the top of the dialog, choose a category from the Preset Type menu.

FIGURE 3.10
The Preset Manager



By default, the Preset Manager displays the chosen set for all preset types in Small Thumbnail view. With tool tips enabled, hovering over each thumbnail in the menu reveals the preset name. To change the way the presets are displayed, click the palette menu button to reveal the flyout window and choose a different view option (these vary depending on which preset type is selected). You can resize the dialog by clicking and dragging the bottom-right corner of the window.

You can select a preset by clicking a thumbnail in the list. Shift+click to select multiple, contiguous presets; or ⌘/Ctrl+click to select multiple, noncontiguous presets. You can rename selected presets by clicking the Rename button, or delete them by clicking the Delete button.

The Preset Manager also allows you to save, load, and reset libraries. You can access any of these options from the flyout menu, just as you would from any palette that displays presets.

Customizing and Creating Brushes

Photoshop also allows you to edit existing brush presets or create new ones by using the Brushes palette (see Figure 3.11). The flexibility that Photoshop's brushes offer can help you achieve just the right look when retouching, working with masks, or illustrating. Not only are brushes totally customizable, but you can also save your favorite brush settings as a custom preset. Being able to save your settings—as you'll soon learn—can also be a huge time-saver. You could literally spend all day toying with the various brush options. When you develop one that works best for you in your workflow, you should definitely save it, or else be faced with the daunting task of trying to remember detailed settings in order to re-create a brush.

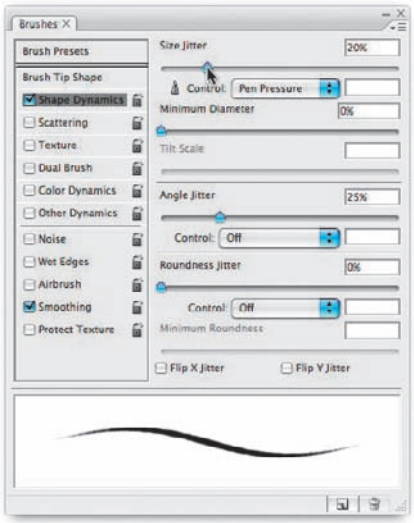


FIGURE 3.11
The Brushes palette allows you to modify and create brushes. Shown here are the controls located in the Shape Dynamics panel.

The Brushes palette contains a series of controls that can alter the way a brush behaves. This palette is also referred to as the *brush engine*. These controls are accessible via different panels in the palette, and allow you to customize brush shape dynamics, scattering, texture, dual brush, color dynamics, and other dynamics. At the bottom of the list of settings on the left are additional options for adding noise, wet edges, and airbrush buildup effects; smoothing paths; and preserving textures. As you make adjustments in the dialog, the brushstroke at the bottom of the palette dynamically changes to reflect your adjustments. You can adjust all the settings by using the scroll bars or by entering a value in the accompanying fields. To enable the additional settings, place a check in the corresponding check boxes.

Brush Tip Shape

To display the settings in the Brushes palette that control the overall look of your brush, click Brush Tip Shape from the menu on the left. These controls allow you to determine the size, angle, roundness, hardness, and spacing of the daubs that you use to paint with. The rest of the settings located in the various panels of the palette affect the way the Brush Tip Shape is applied. As you adjust the settings, the paint daub preview updates at the bottom of the palette.

Here's a quick summary of how each Brush Tip Shape setting works:

Diameter controls the overall size of the brush. Size settings can range between 1 and 2,500 pixels (Figure 3.12). Note that when working with a sampled brush (see the "Defining a Brush Preset" section later in this chapter), the Use Sample Size button appears after changing the diameter setting from its default value. Increasing the diameter for a sampled brush softens the graphic stroke and degrades the sampled image. To reset to the default size, click the Use Sample Size button.

FIGURE 3.12
Diameter settings: top 100 pixels, middle 50 pixels, bottom 20 pixels.

Angle specifies the angle of offset for an elliptical brush. To adjust the angle (Figure 3.13), drag the arrowhead in the angle icon or enter a value in the field.

FIGURE 3.13
Angle settings on an elliptical brush: top 0°, bottom 48°.

Roundness indicates the ratio between the x-axis and y-axis of a brush and ultimately affects the shape of a brush tip. To specify a roundness percentage, drag either dot in the angle icon closer to or farther away from the center, or enter a value in the field. A value of 100% results in a circular brush, as seen in Figure 3.14; 0% results in a linear brush; all other values result in varying elliptical brushes.

FIGURE 3.14
Roundness settings: top 0%, middle 50%, bottom 100%.

Hardness controls the hardness of the brush's center. The higher the value, the harder the stroke (Figure 3.15).

FIGURE 3.15
Hardness settings: top 0%, bottom 100%.

Spacing controls the distance between daubs in a brushstroke (Figure 3.16).

FIGURE 3.16
Spacing settings: top Normal, bottom Increased.

Shared Brush Setting Concepts

The rest of the settings in each panel of the Brushes palette are based around three basic concepts: Jitter, Minimum, and Control. It helps to have a basic understanding of what these concepts are before experimenting with the settings. Here is a brief summary of each:

Jitter allows a specific brush option (such as size or opacity) to fluctuate across a brushstroke. The higher the setting, the more the option will vary.

Minimum determines the range used to apply the Jitter setting.

Control determines when to use the Jitter setting. When set to Off, the Jitter setting is applied all the time. The Fade setting causes the Jitter setting to "fade out" (or gradually disappear) in a particular number of brushstrokes. The remaining three Control settings (Pen Pressure, Pen Tilt, and Stylus Wheel) cause the Jitter setting to be controlled by input from a graphics tablet (see the "Graphics Tablet Pressure Sensitivity" sidebar earlier in this chapter).

Shape Dynamics

The Shape Dynamics settings can change the shape of the chosen brush. They allow you to vary the settings chosen in the Brush Tip Shape section of the palette. Figures 3.17 through 3.19 show various ways these dynamics can be used.

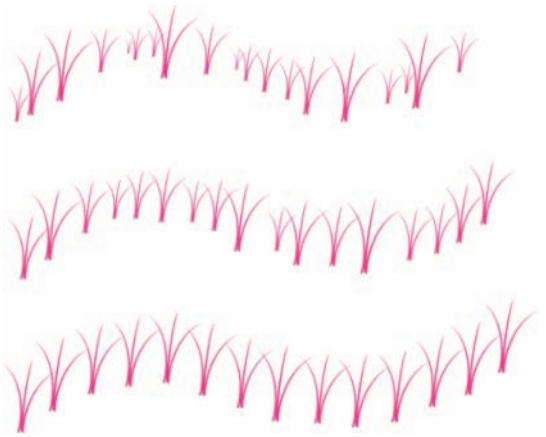


FIGURE 3.17
Size Jitter setting: top 100, middle 40, bottom 10.

FIGURE 3.18
Angle Jitter setting: top 100, middle 50, bottom 10.

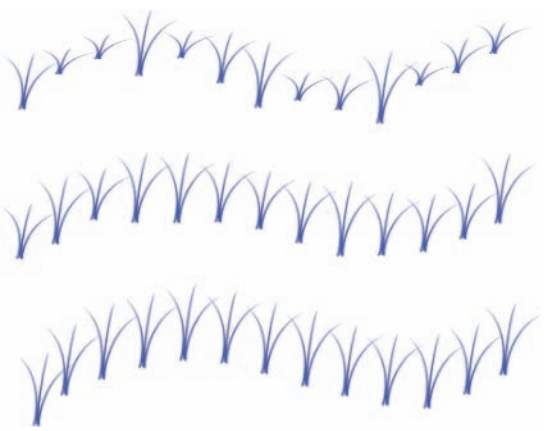


FIGURE 3.19
Roundness Jitter setting: top 100, middle 50, bottom 10.

Scattering

A smooth stroke is actually made up of paint daubs that are extremely condensed. The Scattering setting (Figure 3.20) determines how varied the paint daubs are distributed. Higher values increase the scattering area, creating gaps in the stroke. Lower values result in denser strokes with less scattering. The Count setting (Figure 3.21) determines the number of paint daubs applied within the spacing distance specified in the Brush Tip Shape section of the palette.

FIGURE 3.20
Scattering setting: top 400, middle 200, bottom 50.

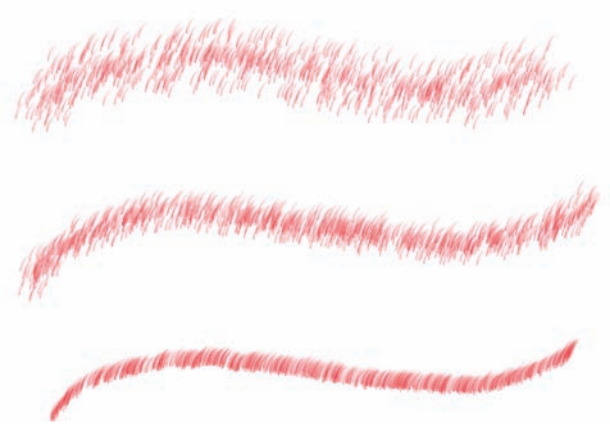


FIGURE 3.21
Count setting: top 10, middle 5, bottom 1.

Texture

The Texture settings control the opacity of the brush based on the texture that is chosen from the Pattern Picker (Figure 3.22; click the pattern swatch at the top of the dialog to display the Picker). You must enable the Texture Each Tip setting in order to gain access to the Depth Jitter controls. The Mode menu determines the opacity blend between the brush and the texture. Different blend modes can affect the way the texture appears in the center or along the edges of the brushstroke, as shown in Figure 3.23.

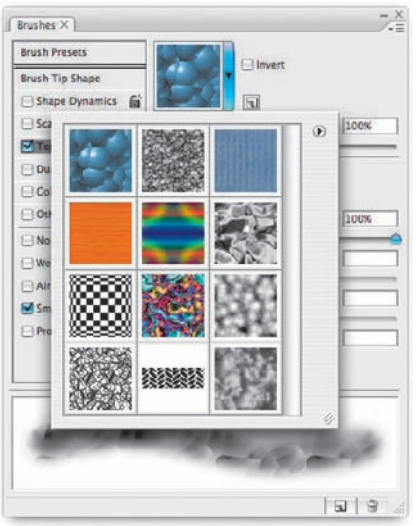


FIGURE 3.22
The Pattern Picker

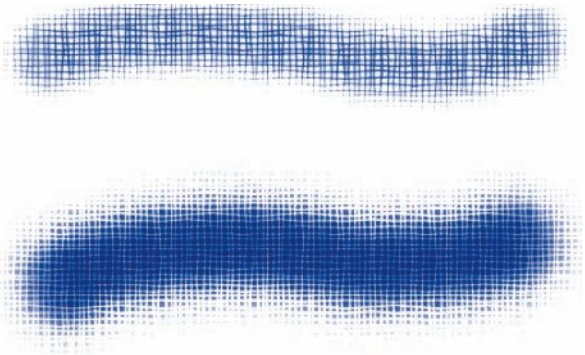


FIGURE 3.23
Varying the blend mode with the Texture setting: top, Subtract mode; bottom, Linear Burn mode.

Dual Brush

Dual Brush settings allow you to combine two brushes into one, an effect that's illustrated in Figure 3.24. Photoshop combines any brush that you choose from the Dual Brush panel with the brush that is currently selected in the Brush Tip Shape panel. Color is applied only where the two brush shapes overlap. Dual brushes are especially useful when trying to replicate wet natural media such as watercolor or sponge painting.

FIGURE 3.24
A Soft Round/Wet Media combination

Color Dynamics

Color Dynamics allow you to vary the color that is applied to each brushstroke:

Foreground/Background Jitter (Figure 3.25) varies between the currently chosen foreground and background colors.

FIGURE 3.25
Foreground/Background Jitter (red foreground, green background): top 100, middle 50, bottom 10.

Hue Jitter (Figure 3.26) changes the color of the brush randomly.

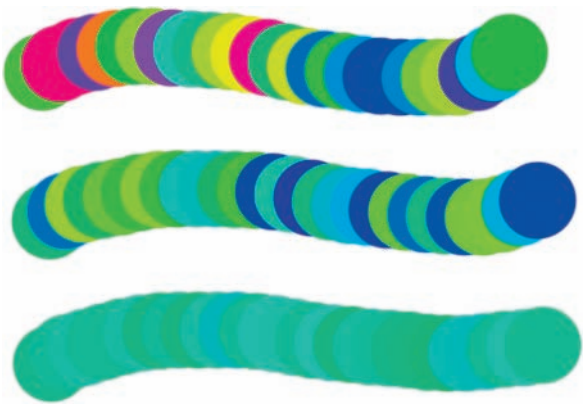


FIGURE 3.26
Hue Jitter: top 100, middle 50, bottom 10.

Saturation Jitter (Figure 3.27) varies the vividness of the color(s) you are painting with.

Brightness Jitter (Figure 3.28) darkens the color randomly.

Purity (Figure 3.29) allows you to adjust the overall saturation of the color(s) you are painting with. Zero makes no change; negative values lower saturation; positive values increase saturation.

FIGURE 3.27
Saturation Jitter: top 100, middle 50, bottom 20.

FIGURE 3.28
Brightness Jitter: top 100, middle 50, bottom 10.

FIGURE 3.29
Purity: top +50, middle 0, bottom –50.

Other Dynamics

The Opacity and Flow Jitter settings located in the Other Dynamics panel allow you to vary the Options palette settings for the currently chosen painting tool. The Opacity setting (Figure 3.30) controls the transparency amount—how much you can see through the brushstroke—and the Flow setting (Figure 3.31) controls the speed at which you reach that opacity level. When enabled, the Opacity and Flow settings are applied to each brushstroke but never exceed the settings in the Options palette.

FIGURE 3.30
Opacity Jitter: top 100, middle 50, bottom 0.

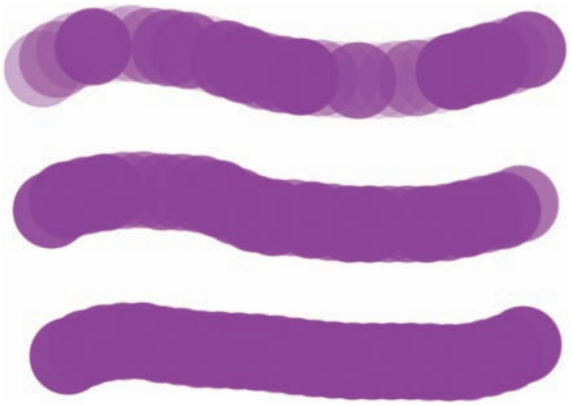


FIGURE 3.31
Flow Jitter (Opacity set to 100): top 100, middle 50, bottom 10.

CLEAR BRUSH CONTROLS

To return to the original brush settings (preset defaults or saved as defined settings), choose Clear Brush Controls from the Brushes palette menu. This removes any adjustments you've made to any brushes in all the currently loaded sets in the Brushes palette. This cannot be undone. Therefore, to avoid losing any of the adjustments you've made to the preexisting brushes, be sure to save them prior to clearing the controls (see the "Saving a Brush Preset" section later in this chapter). Note that the Clear Brush Controls command does not unlock any brush settings. To do that, you must choose Reset All Locked Settings from the Brushes palette menu.

Additional Brush Settings

The remaining brush settings do not change the controls that are displayed in the center of the palette when enabled. Unlike the settings above them in the list, these settings are simple on/off controls. Here's a brief summary of what each one does:

Noise adds noise (a series of small dots) to soft-edged brushstrokes. Noise is more noticeable when applied to softer-edged brushstrokes.

Wet Edges causes the center of the brush to become partially opaque and applies more color toward the edges of the brushstrokes. The effect is more noticeable when applied to softer-edged brushstrokes.

Airbrush allows you to toggle the airbrush option in the Options palette on and off. When enabled, the airbrush is controlled by the Opacity and Flow settings, which are also specified in the Options palette. The Opacity setting controls the transparency amount (how much you can see through the brushstroke), and the Flow setting controls the speed at which you reach that opacity level. Lower Flow settings allow you to "build up" applied color with repeated strokes, just as you would with a real airbrush or a can of spray paint.

Smoothing helps to even out your lines and curves as you paint. Enabling this option can be especially helpful when using a graphics tablet.

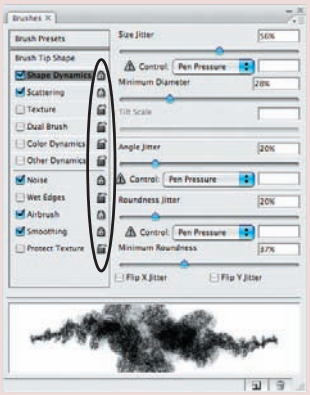
Protect Texture maintains a consistent pattern when painting multiple textured strokes.

Defining a Brush Preset

Photoshop allows you not only to create custom brushes by altering settings from the default preset brushes, but also to define a brush preset based on a scanned-in texture, a shape imported from Adobe Illustrator, or a paint daub created in another application, such as Corel Painter. This is a great feature for fine artists and illustrators, but how can print designers and production artists make use of it?

Lock Brush Settings

By clicking any of the lock icons located next to the setting names in the Brushes palette, you are telling Photoshop to apply those settings to any brush preset you choose. This can be especially helpful when creating sets of brushes with similar characteristics. The lock feature can also be useful when applying brushstrokes that use the same Control menu options, such as stylus Pen Pressure Control. To unlock all locked brush settings at once, choose Reset All Locked Settings from the Brushes palette menu.



One of my favorite uses for the Define Brush Preset command is to create textured brushes that can be used to produce custom frame effects. Before you can define a brush preset, you first need to create a paint daub. There are several ways to do this:

- Import a custom shape from Adobe Illustrator (see Chapter 11, "CS3 Integration").
- Create a custom shape layer by using the Pen tool or the Freeform Pen tool (you can also edit a shape layer created with one of the default shape tools).
- Import a natural media texture by scanning it into Photoshop (some examples are paint daubs made with oil, watercolor, charcoal, or any other natural art media).
- Create a paint daub by using any of the brushes in Corel Painter and save it as a PSD file.
- With one of the marquee selection tools, select an image area that you'd like to sample. Note that Photoshop automatically saves the sampled image as grayscale. Also, because we're dealing with pixels, *resolution is a factor when resizing the brush*, so be careful not to make it too large (for more on resolution, see Chapter 1).

After you've determined the custom texture, shape, or sampled image that you'd like to define as a brush, use the Rectangular or Elliptical Marquee tool to select it and choose Edit ➢ Define Brush Preset. In the Brush Name dialog box that appears, enter a descriptive name for the brush. The more descriptive the name, the easier it will be to identify the brush later.

After the brush is defined, you can use the Brushes palette to alter the settings as needed. I like to use the Scattering, Noise, Wet Edges, and Pen Pressure control options to create eye-catching frame effects. These types of frame effects can add a creative flair to the images when placed in a print layout (see Figures 3.32 and 3.33).

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FIGURE 3.32
A cloudlike frame edge effect created with a custom oil-paint brush. The original paint daub was created in Corel Painter and saved as a PSD file.

FIGURE 3.33
A burst frame effect created with a custom star-shaped brush. The original paint daub was created in Adobe Illustrator CS3 and exported as a PSD file.

If you like the brush settings you've used to create the frame effect, you can always save them as a new brush preset.

Saving a Brush Preset

After you've created a custom brush with the Brushes palette, you can save the settings as a preset. Doing so allows you to restore the brush settings whenever you'd like to use them again.

To save your custom settings as a preset, choose New Brush Preset from the Brushes palette or Presets Picker flyout menu. In the dialog box that appears, enter a name for the brush and click OK (see Figure 3.34).

FIGURE 3.34
Enter a descriptive name for your custom brush.

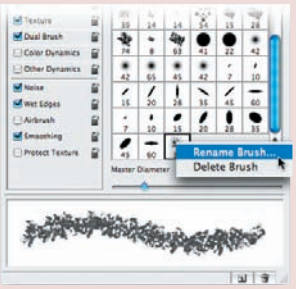
The new brush is added to the bottom of the thumbnail list for the library that is currently visible in the Brushes palette and Options palette Brush Presets Picker. To save your brush library, choose Save Brushes from the flyout menu. Photoshop then displays the Save dialog box, where you can name the new library. The default file location on your system for custom brush presets is in these folders:

```
Mac: Applications/Adobe Photoshop CS3/Presets/Brushes
Windows: Program Files/Adobe/Photoshop CS3/Presets/Brushes
```

If you choose not to save the library and then apply the Reset Brushes command, or load another library without appending, then all changes you've made to the library will be lost.

RENAMING BRUSHES

If you don't like the names that Photoshop has given the preset brushes, or if you'd like to rename one of your own custom brush presets to something more descriptive (for example, *custom sponge 1* as opposed to *brush 1*, or *my brush*), you can rename a selected brush by Control+clicking (Mac) or right-clicking with a two-button mouse and choosing Rename Brush from the pop-up menu.



Enter a new name in the Brush Name dialog box that appears and click OK.

Brushes and Layer Masks

Painting in layer masks with the Brush tool is a great hands-on technique for combining image layers in a print montage (see Chapter 7). It can also be a useful technique for controlling adjustments made in Photoshop. Working with brushes and layer masks not only provides an incredible amount of editing control—it's also completely nondestructive. No pixels harmed!

Real World Scenario

Controlled Sharpening

It's not uncommon for photographers to submit a photograph of a person's face that is intentionally soft. Although this "glamour shot" type of effect can create nice smooth skin and help soften the background area, too much detail can get lost in the eyes and mouth. The eyes are the most important part of a headshot, because they draw the viewer into the photograph and ultimately into the layout that you've placed it in.

By using brushes, layer masks, and smart filters, you can nondestructively enhance specific areas of the photograph. Brushes give you hands-on control, and using them with layer masks and smart filters allows you to edit the applied sharpening technique at any time without harming any pixels (for more on layer masks, see Chapter 7, "Combining Image Layers"; for more on smart filters, see Chapter 8, "Layer Styles and Filter Effects").

Here's a hands-on sharpening technique you can use to add some life to your headshots:

1. Start by opening a soft photograph of a person's face (also called a headshot). By *soft*, I mean slightly blurry, like the example shown here. I've included this image in the Chapter 3 folder on the companion CD for your practice.

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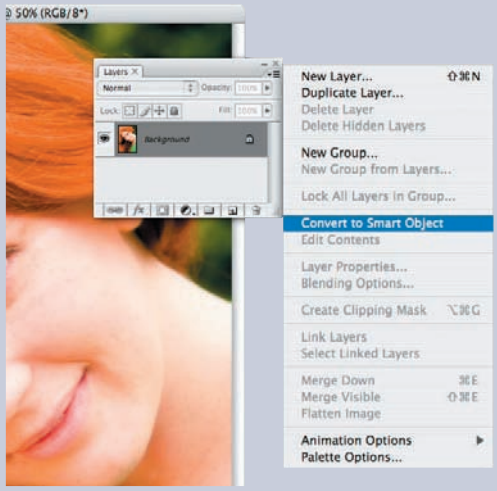
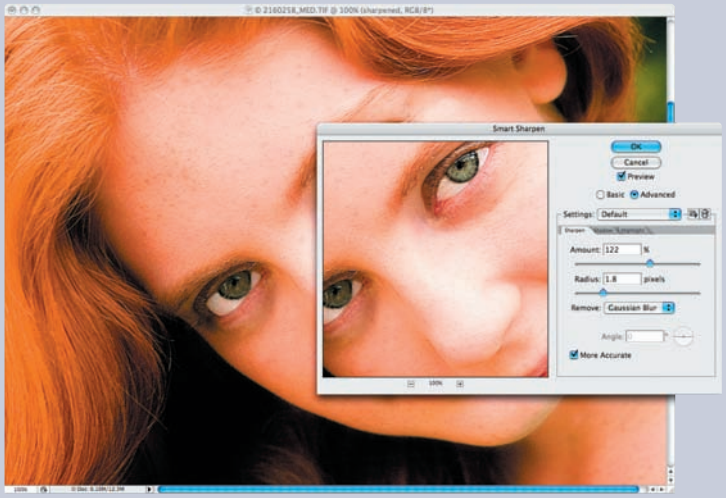
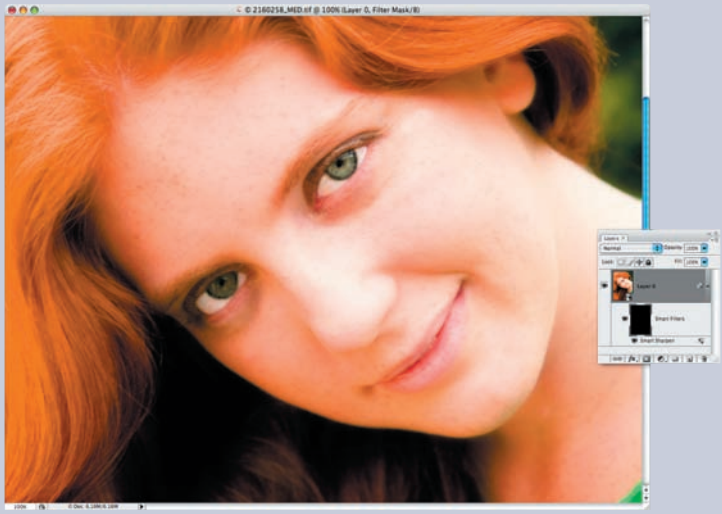
2. In this example, the model's skin looks nice and smooth, which is great. You certainly don't want to see into a person's pores when a shot is taken this close. However, the eyes, eyebrows, nose, and lips could all use some sharpening. Before we sharpen the image, let's first convert it into a smart object. Doing so allows us to take advantage of smart filter editability. To convert the image into a smart object, choose Convert To Smart Object from the Layers palette flyout menu. Once converted, name the layer **original**.



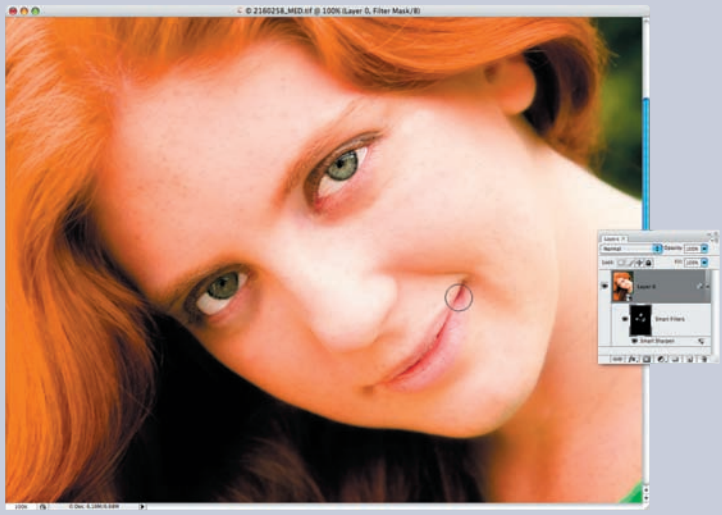
3. Choose Filter ➢ Sharpen ➢ Smart Sharpen to bring up the Smart Sharpen dialog box. Proceed to apply the amount of sharpening necessary to create the illusion of stronger focus (for more on sharpening, see Chapter 9, "Reducing Noise and Sharpening"). Be sure to zoom in to 100% in both the image window and the Preview area of the dialog box to ensure that you are previewing accurately. When you're finished sharpening, click OK to close the dialog and apply the filter to the smart object.



4. In the Layers palette, click in the layer mask icon (layer masks are automatically applied to smart filters). Press D to reset the application default colors of black foreground and white background. Press Option+Delete (Mac) or Alt+Backspace (Win) to fill the mask with black and conceal the sharpened image. Doing so hides the sharpening effect.



5. Press B to access the Brush tool. Choose a soft round brush from the Presets Picker in the Options palette. Make sure the Mode menu is set to Normal. Set the Opacity level to 50% and the Flow to 100%. Press X to switch the foreground and background colors, making white the foreground color. Proceed to paint over the eyebrows, eyes, nose, and lips. By painting in the mask with white, you are revealing the sharpened areas with your brushstrokes. If the areas still don't seem sharp enough, paint over them again, bringing them to 100% opacity.



6. Compare the original image to the sharpened version. You can see how adding just a little sharpening in the right areas can make a big difference in the photo's impact. Keep in mind that no pixels have been harmed in this process. You can always edit your brushstrokes in the mask, or even change your Smart Sharpen setting if necessary.

Before

After

History Painting

The History brush works just like the Brush tool, except it allows you to paint backward in time. After you specify a history state in the History palette, you can then paint with the History brush and restore parts of an image.

I find the History brush especially useful when removing an image from its background with the Extract filter. Rather than restoring areas that were accidentally erased in the Extract dialog box with the Cleanup tool, I sometimes prefer to apply the filter, and restore those areas in the image window with the History Brush.

To apply this technique, complete your extraction by choosing Filter ➢ Extract to open the dialog box, and click OK to apply the filter (for more on the Extract filter, see Chapter 2, "Making Good Selections"). As a result, the extracted image appears on its own transparent layer with no Background. ⌘/Ctrl+click the Create A New Layer icon at the bottom of the Layers palette to add a layer underneath the extracted layer. Press D to reset the application default colors of black foreground and white background. Press ⌘+Delete (Mac) or Ctrl+Backspace (Win) to fill the new layer with white. Doing so provides a clean canvas underneath the image for you to clearly see what needs to be restored (see Figure 3.35).

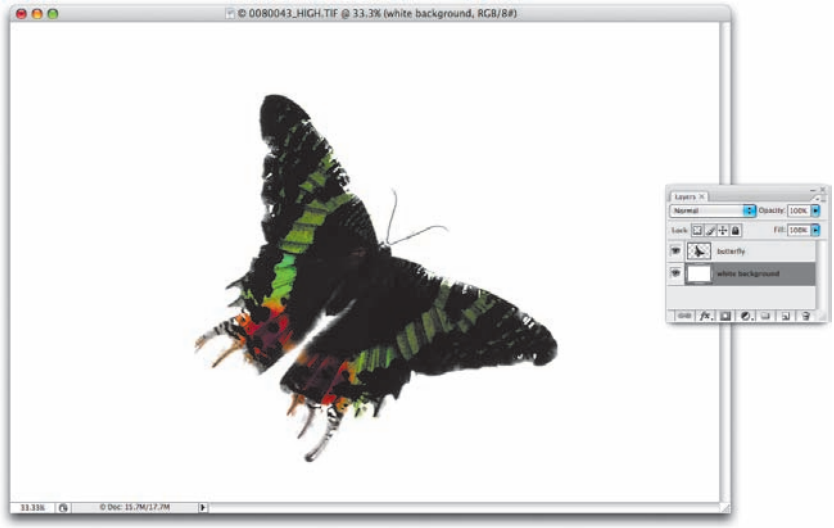


FIGURE 3.35
Before restoring with the History brush, add a white layer underneath the extracted image.

Choose Window ➢ History to display the History palette. Then in the palette, click to the left of the history state positioned just before the Extract filter. A brush icon appears next to the history state (see Figure 3.36).

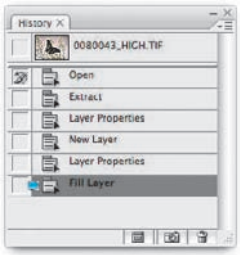


FIGURE 3.36
Select the history state above the Extract filter.

To restore the edges of the image with sharp clarity, choose a hard round brush from the Presets Picker in the Options palette and click the extracted image layer in the Layers palette. Make sure the brush opacity level is set to 100% in the Options palette and begin painting in the areas of the image that need to be restored. As you add brushstrokes, Photoshop goes back in time and magically restores those areas (see Figure 3.37).

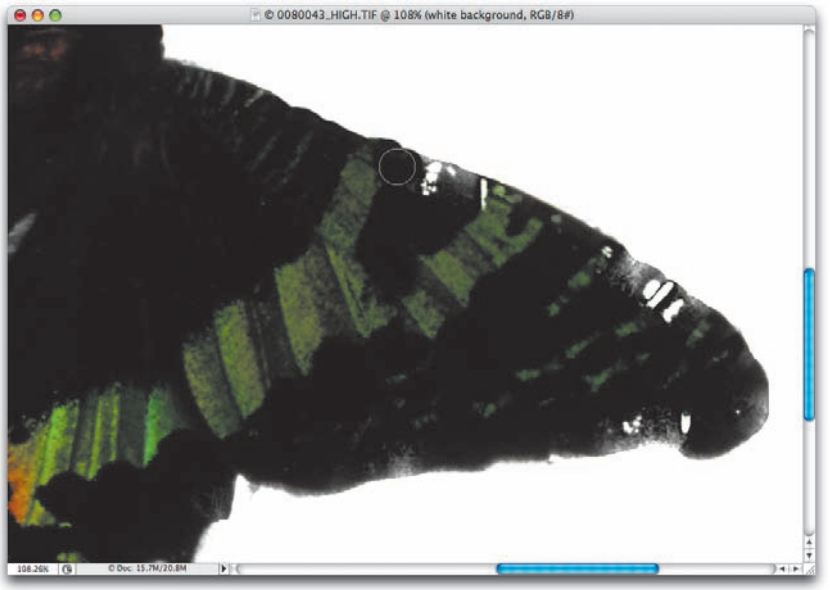


FIGURE 3.37
Painting with the History brush restores any areas that were accidentally erased with the Extract filter.

The Bottom Line

Customize and Create Your Own Brushes Photoshop allows you to edit existing brush presets or create new ones by using the Brushes palette. The flexibility that Photoshop's brushes offer can help you achieve just the right look when retouching, working with masks, or illustrating.

> **Master It** Press B to access the Brush tool and then choose Window ➢ Brushes to display the Brushes palette. Select a brush from the Brush Presets Picker.

Save Custom Brush Settings as Presets Being able to save your brush settings can be a huge time-saver. When you develop one that works best for you, definitely save it, or else be faced with the daunting task of trying to remember detailed settings in order to re-create a brush.

> **Master It** Using what you now know about the Brushes palette, choose the brush settings that you'd like to apply to your custom brush.

Use Brushes Effectively with Layer Masks Painting in layer masks with the Brush tool is a great hands-on technique for combining image layers in a print montage. It can also be a useful technique for controlling adjustments made in Photoshop, including smart filters. Working

with brushes and layer masks not only provides an incredible amount of editing control—it's also completely nondestructive.

> **Master It** Create a montage by using layer masks and brushes, or use them to control where adjustments are applied in a more hands-on fashion.

Restore with History Painting The History Brush allows you to paint backward in time. It can be used to restore parts of an image that were accidentally damaged or erased. For example, specific areas of an image that have become too blurry as the result of applying a noise reduction filter to the entire photo can be restored by using the History brush.

> **Master It** Work with confidence as you edit your images. It helps to know that if you get into a situation where you'd like to restore certain areas of an image to a previous history state, you can with the History brush.

Chapter 4

Working with Color

Like all print designers, you rely on images to add visual interest to your layouts, and *color* plays a big part in that. That's why it's so important to "take control" of your color. Photoshop puts you in the driver's seat by allowing you to select, replace, and enhance the colors of your images. Photoshop also provides several ways to add color to grayscale images, or—if your design calls for it—there are also several ways you can remove colors from your images and work exclusively in black-and-white.

In this chapter, you will learn to:

- Replace colors in an image
- Colorize a grayscale image
- Convert a color image to grayscale
- Add a spot color channel
- Create a duotone

Replacing Colors

Replacing colors is one of the most common tasks print designers and production artists are faced with. And as you might have guessed, Photoshop provides us with more than one way to complete this task. In this section, we'll take a close look at the various tools and methods for replacing colors, and I'll offer up some guidelines along the way.

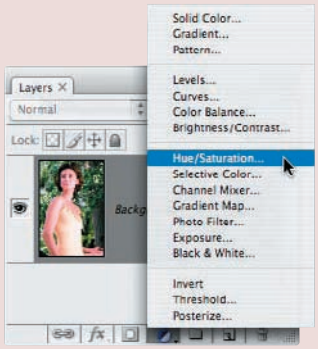
Hue/Saturation Adjustments

Photoshop's Hue/Saturation controls are the easiest to work with when recoloring selected areas of a photo. When making this type of adjustment, you have two options: to access the Hue/Saturation dialog box and apply the change by using the Image ➢ Adjustment command, or to use a Hue/Saturation adjustment layer.

Choosing the menu command applies a permanent change to your image that can be undone only by using the Undo command (⌘/Ctrl+Z) or by selecting a previous state in the History palette. Edits cannot be made to the adjustment unless the command is undone first. If you take one too many steps past your history limit, you're stuck with a permanent change that cannot be undone. Adjustment layers, on the other hand, allow you to edit or undo the adjustment any time—without any limitations.

Adjustments vs. Adjustment Layers

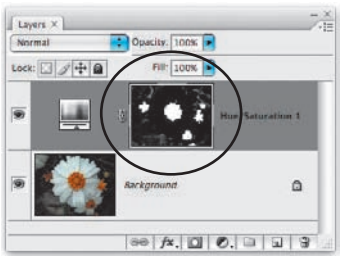
The smartest way to apply adjustments to an image is to use adjustment layers. Using adjustment layers instead of the adjustment commands offers more flexibility and control, because it allows you to make changes to the adjustment at any time after it is applied. The easiest way to add an adjustment layer is to click the Create New Adjustment Layer button at the bottom of the Layers palette and choose the type of adjustment you'd like to apply from the pop-up menu, or if you prefer, you can choose one from the Layer menu (Layer ➢ New Adjustment Layer ➢ Hue/Saturation).



Before you can replace specific isolated colors in an image by using Hue/Saturation, you first need to select them. This can be done by using any of the selection tools described in Chapter 2, "Making Good Selections" (with the exception of the Magic Eraser, Background Eraser, and Extract filter). But a better way to select specific colors in an image is to use the Select ➢ Color Range command. In most instances, this is a much easier and more accurate way to select colors that you intend to replace.

The Hue/Saturation Dialog Box With your selection already made, apply a Hue/Saturation adjustment layer as described earlier. The selection area is automatically applied to an adjustment layer mask (for more on masks, see Chapter 7, "Combining Image Layers"). This allows you to shift colors in the selected areas only, while all other areas are masked from the Hue/Saturation adjustment (see Figure 4.1).

FIGURE 4.1
The selection is applied to an adjustment layer mask.



Replace Color Command

The Image ➢ Adjustments ➢ Replace Color dialog box combines the Select ➢ Color Range options with the Hue/Saturation sliders. This is a great tool for replacing color without having to open more than one dialog box. The only problem with Replace Color is that you can apply it as a command only and not as an adjustment layer.

The Original Image Selection
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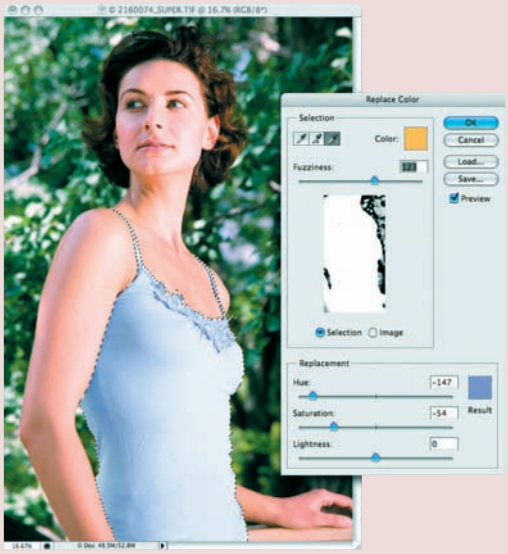


The Replace Color Dialog with Preview Enabled

You can use the top half of the dialog to select a color range by using the same methods as with Select ➢ Color Range. After your selection is complete, use the Hue/Saturation sliders at the bottom of the dialog to replace the color. With the Preview option enabled, you can see the color applied to the image before clicking OK.

The controls in the Hue/Saturation dialog box allow you to rotate the color wheel and shift the colors in your image. Adjust the Hue slider to cycle through the full spectrum of colors. After you've chosen a replacement color, use the Saturation slider to control how vivid the color is, and the Lightness slider to control how dark it appears (see Figure 4.2).

Notice that after the color was shifted in Figure 4.2, the shadow areas around the center of the flower contained a yellow cast rather than a red one. This was repaired by painting in the adjustment layer mask with a soft white brush set at a low opacity setting (for more on using brushes with layer masks, see Chapter 3, "Working with Brushes").

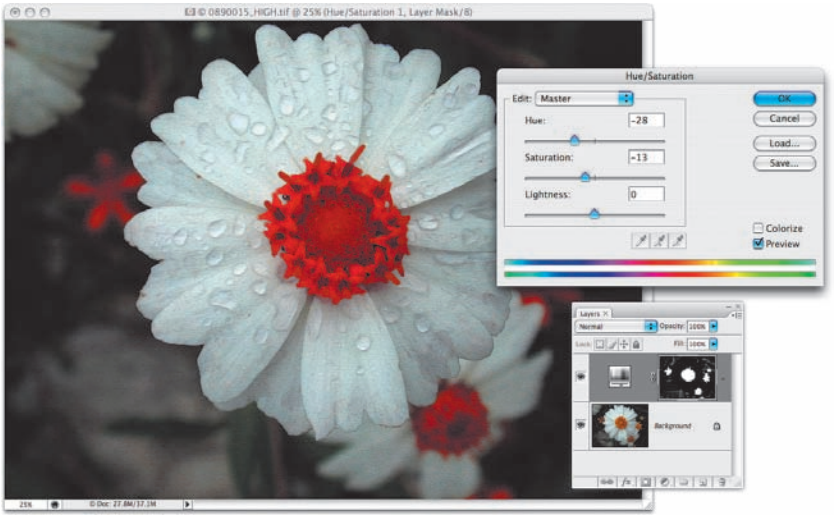


FIGURE 4.2
Adjust the Hue slider to cycle through the full spectrum of colors. Use the Saturation slider to control how vivid the color is, and the Lightness slider to control how dark it appears.

Hue/Saturation Colorize Option By enabling the Colorize option in the Hue/Saturation dialog box, you can ensure that all of the affected colors in the original image are changed to the chosen replacement color, which is displayed in the bottom color bar. This usually dulls the highlight and shadow areas of the adjusted color area. You can use the Saturation and Lightness sliders to correct this, but depending on the image you are working with, the recolorization may not look as natural (see Figure 4.3).

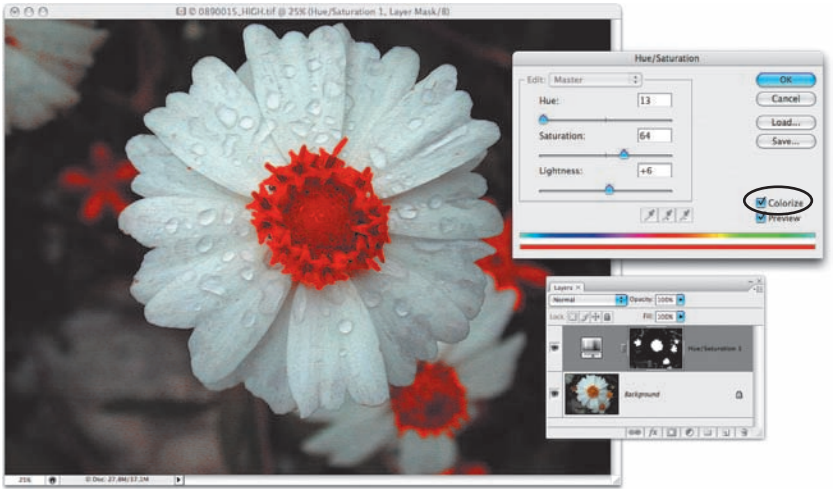
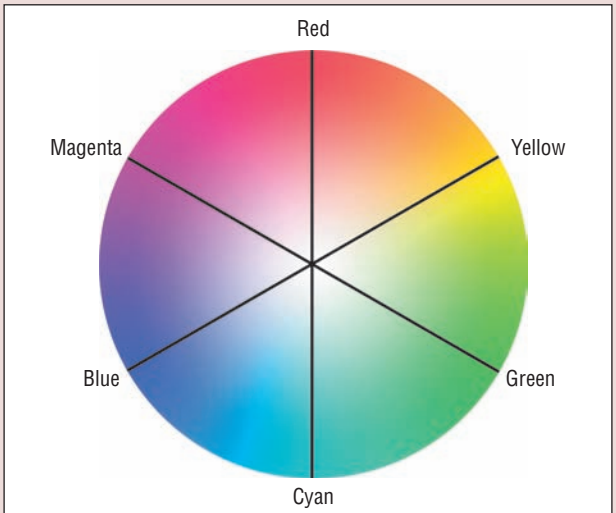


FIGURE 4.3
In this example, the selection was recolored with the Hue/Saturation Colorize option enabled. To change the color to a similar red as shown in Figure 4.6, entirely different Hue, Saturation, and Lightness settings are applied. As a result, some of the areas along the selection edge appear oversaturated.

The Color Wheel

At the heart of Photoshop's color controls is the classic color wheel. It helps to have a firm understanding of basic color wheel concepts when making color adjustments in Photoshop.



The Color Wheel

If you take a close look at the color wheel, you'll see that it is made up of six basic colors: red, yellow, green, cyan, blue, and magenta. Every color is based on one of these six primary colors, or the transitions between them. The primary color that any color is based on is referred to as its *hue*.

The Hue values in Photoshop's color controls (such as Hue/Saturation) are based on the color wheel. Photoshop can determine the distance between primary colors on the color wheel, starting with red and moving clockwise around. Therefore, by applying a Hue adjustment in the Hue/Saturation dialog box, you are essentially spinning the color wheel in order to adjust the color in your image.

Color adjustments can also be made by shifting the colors in your image toward one of the six primary colors. Red, green, and blue are the exact opposites of cyan, magenta, and yellow, respectively. Therefore, adding red takes away cyan, adding green takes away magenta, adding yellow takes away blue, and vice versa all the way around. When you push the colors in an image toward one of the primary colors, all of the image's colors become more alike.

Also notice that as the colors move toward the center of the wheel, they become less colorful and eventually lead to white. The colors on the outer edge of the wheel are the most vibrant, while the center of the wheel contains no color at all (this represents neutral gray). Photoshop describes how vibrant a color is by using percentages, which are referred to as *saturation* values. A 100% saturation value refers to the colors on the outer edge of the wheel, whereas 0% refers to the center of the wheel, or gray (no color at all). All other saturation values are located between the outer edge and the center.

The one other thing that Photoshop's color controls refer to, but the color wheel does not reflect, is the brightness levels of all the colors. Photoshop uses three terms to describe brightness in a color: *brightness*, *lightness*, and *luminosity*, and they all mean the same thing—how light or dark a color appears.

With the Colorize option disabled, all of the affected colors simply shift around the color wheel. Depending on your image, this can sometimes make the recoloring appear more natural. This is because not all of the affected colors are replaced in the same way, as they would be with the Colorize option turned on. However, it can also have a negative affect on any shadow and highlight areas that contain their own color cast, by applying the wrong color in relation to the new replacement color and to the rest of the image.

Blend Modes

You can also use layer blend modes to change the appearance of colors in an image. *Blend modes* allow you to apply different types of transparency effects that determine how a layer interacts with the underlying colors contained in the layers underneath (for more on blend modes, see the "Opacity and Blend Modes" section of Chapter 7). To apply this method of pseudo recolorization, first make a selection by using any of the selection tools described in Chapter 2 (with the exception of the Magic Eraser, Background Eraser, and Extract filter), or use Select ➢ Color Range.

After your selection is complete, click the New Adjustment Layer icon at the bottom of the Layers palette and choose Solid Color from the pop-up menu. Solid-color adjustment layers allow you to overlay a chosen color over the underlying layers in an image. You can use blend modes to change the way the overlying color interacts with the colors present in the layers underneath. Choose a replacement color from the Color Picker dialog box that appears and click OK (see Figure 4.4).

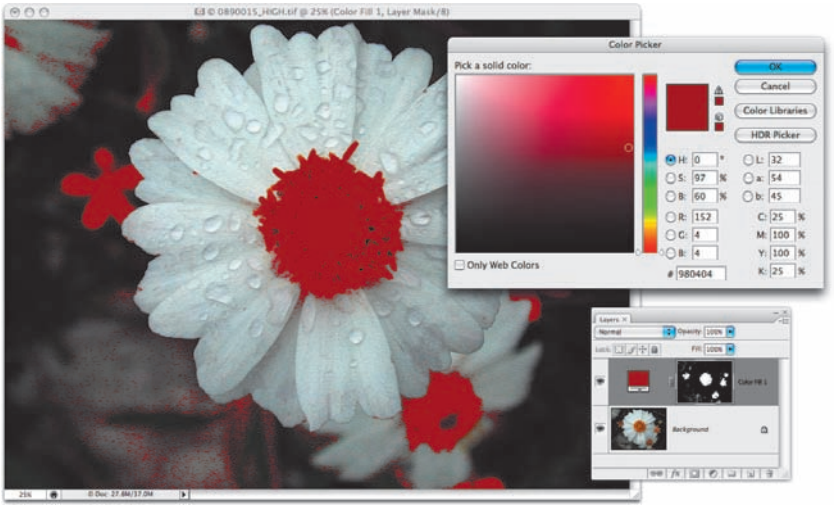


FIGURE 4.4
After your selection is complete, add a Solid Color fill adjustment layer. This selection was made by using Select ➢ Color Range, and a dark red was chosen from the Color Picker.

Now change the blend mode of the Solid Color adjustment layer to Hue. This is where you may get unexpected results. Depending on the color you've chosen to replace and the color you've selected with the Color Picker, the new color may appear too dark or too light (see Figure 4.5).

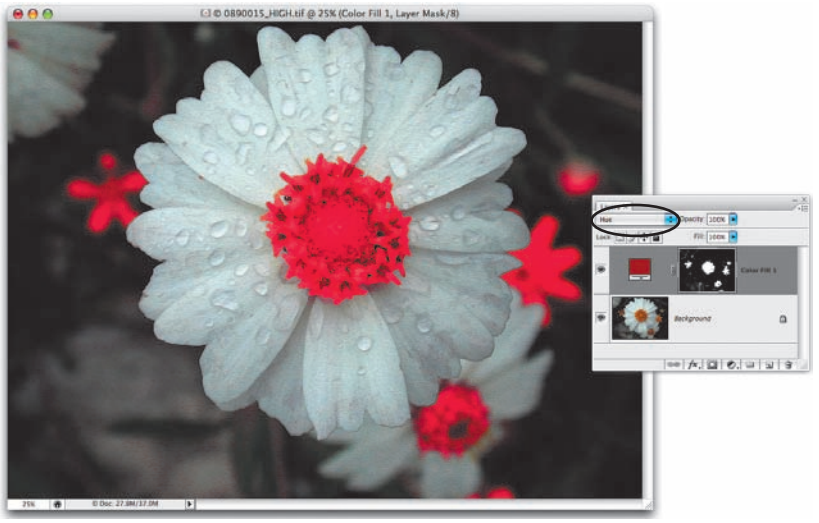


FIGURE 4.5
In most cases, simply changing the blend mode is not enough. In this example, changing the blend mode to Hue made the red too light and oversaturated. A Hue/Saturation adjustment must also be made.

When this happens, select the Background layer (or the image layer directly underneath the Solid Color adjustment layer) in the Layers palette. Then ⌘/Ctrl+click the Solid Color adjustment layer mask icon to reselect the color area. Proceed to add a Hue/Saturation adjustment layer. Loading the selection first applies the same mask to the Hue/Saturation adjustment. With the Preview option enabled, move the sliders around until you get the results you want (see Figure 4.6).

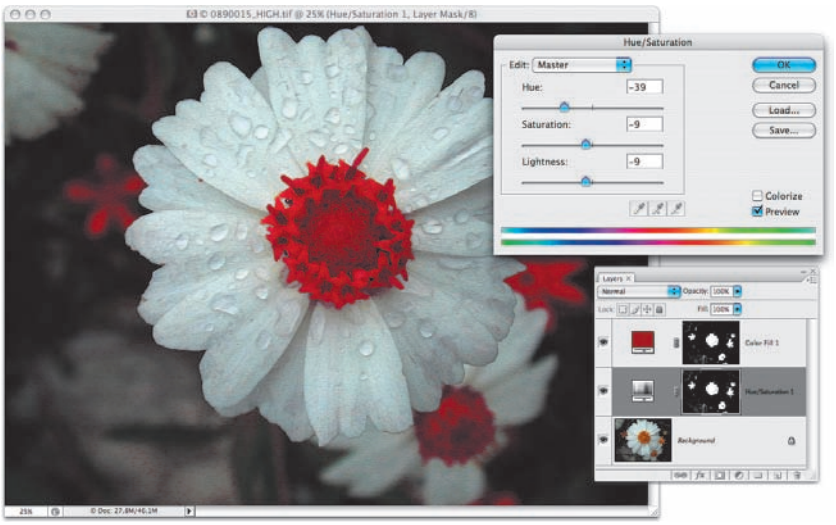
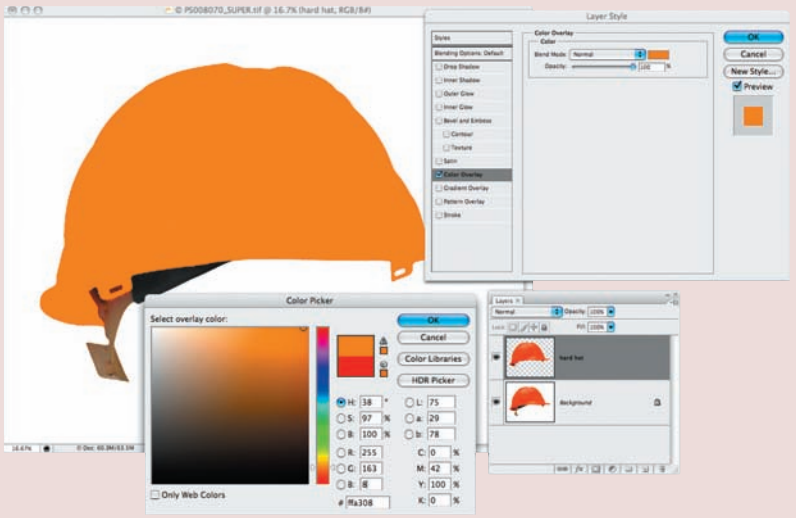


FIGURE 4.6
In this example, the Hue slider was moved to the left to shift the color wheel to a dark red; the Saturation was moved to the left to decrease the color intensity; and the Lightness slider was also moved slightly to the left to darken the color area. These adjustments all helped make the replacement color appear more natural.

Color Overlay Layer Style

A similar blend mode recolorization technique can also be applied by using the Color Overlay layer style. To use this method, make your selection and press ⌘/Ctrl+J to duplicate the image and place it on a new layer above the Background. Click the Add A Layer Style icon at the bottom of the Layers palette and choose Color Overlay from the pop-up menu. Click the color swatch in the dialog box to access the Color Picker, and choose a replacement color.



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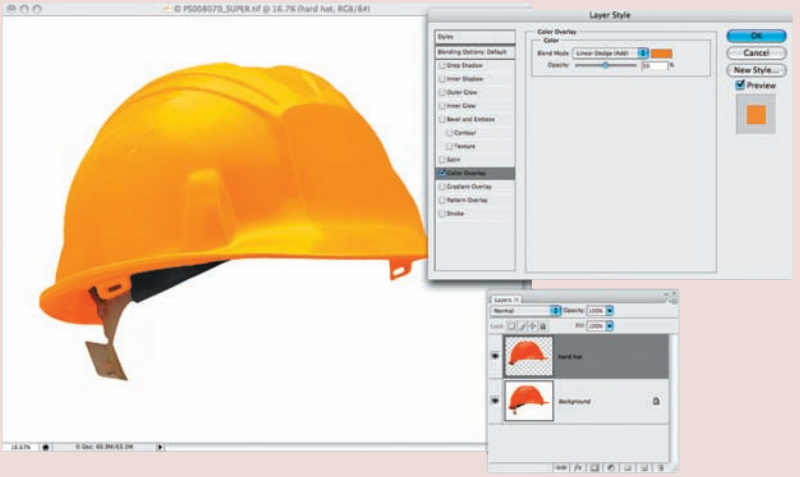
Experiment with the different blend modes until you find one that makes the replacement color appear the most natural when applied to your image. In this example, Linear Dodge worked best when set to 50% opacity (for more on what each blend mode does, see the "Opacity and Blend Modes" section of Chapter 7). Click OK to apply the layer style.



Color Replacement Tool

The Color Replacement tool offers a much more hands-on approach to replacing colors in an image. It allows you to replace an area of color with the current foreground color by painting over it with a brush. What's even better is that you don't have to worry about being extra precise. Photoshop replaces only those colors that you mouse over with the brush cursor's center crosshair (for more on brushes, see Chapter 3).

One drawback to using the Color Replacement tool is that you cannot work with it nondestructively as you can with Hue/Saturation adjustment layers. The best you can do is use it on a duplicate of the image, keeping an untouched original in the Layers palette or in a separate document. However, for quick and easy color changes, the Color Replacement tool can still be useful.

You can access the Color Replacement tool by clicking and holding the currently visible Brush icon in the Tools palette and selecting Color Replacement Tool from the pop-up menu that appears (see Figure 4.7). You can also toggle between the Brush tool, Pencil tool, and Color Replacement tool by pressing Shift+B or by Option/Alt+clicking on the forefront icon in the palette.

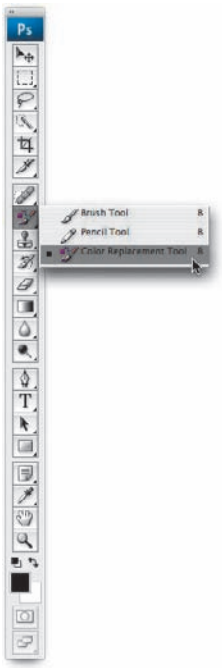


FIGURE 4.7
The Color Replacement tool

With the exception of the Mode menu, the Options palette controls for the Color Replacement tool are exactly the same as those for the Background Eraser (explained in Chapter 2). Use these controls to indicate which areas should change and which ones should be ignored as you paint with the brush (see Figure 4.8).

FIGURE 4.8
Except for the Mode menu, the Color Replacement tool options are the same as those for the Background Eraser.

Choose an option from the Mode menu to indicate how you'd like the foreground color applied wherever you paint:

Hue changes the basic color without changing the brightness or saturation. This is the mode to use for controlled recoloring.

Saturation makes the affected area as colorful (or *saturated*) as the chosen foreground color. It does not change the color or brightness of the area. Painting with a foreground color of black, white, or any shade of gray desaturates the affected area, converting it to black-and-white.

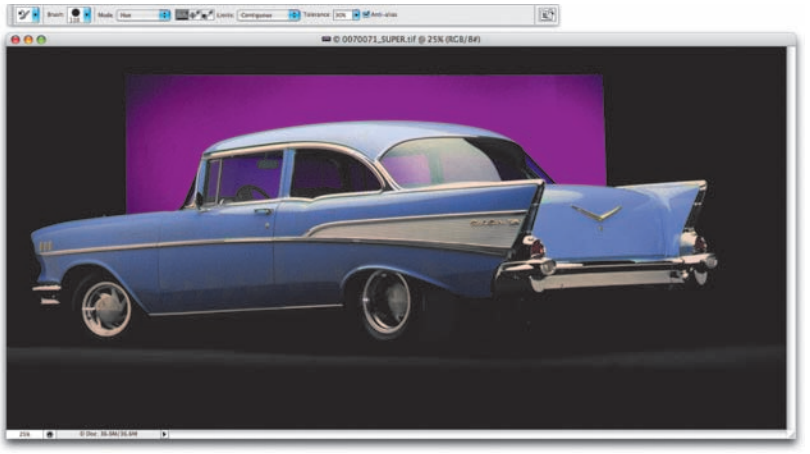
Color changes the basic color and saturation of the affected area, but not the brightness. Painting in this mode is like applying the Hue/Saturation Colorize option with a brush (see the Hue/Saturation Colorize option explained earlier in this chapter).

Luminosity changes the brightness (or *luminosity*) of the affected area to match the chosen foreground color. It does not allow you to shift colors.

For general recolorization, select a replacement color by using the Color Picker, set the Mode option to Hue, and keep the sampling option set to Continuous. After the proper Limits and Tolerance options are set, simply paint over the image area you'd like to recolor (see Figure 4.9).

FIGURE 4.9
The color of this car was changed in seconds from green to blue by using a 110px hard brush and the options set to Hue Mode, Continuous sampling, Contiguous Limits, and 30% Tolerance.

The Original Image



The Recolored Image

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Colorizing a Grayscale Image

Adding color to a grayscale image is definitely a hands-on process. There is no "one-click," quick and easy way to go about hand-tinting an image. However, if the images in your print design or layout require it, you can get really creative when performing this task.

Hue/Saturation Adjustment Layers

One way to colorize a grayscale photo is to apply Hue/Saturation adjustment layers to selected areas of the image. First, convert the image to RGB mode by choosing Image ➢ Mode ➢ RGB Color. Then select an area that you'd like to add color to by using any of the available selection tools (except for the Magic Eraser, Background Eraser, and Extract filter—see Figure 4.10).

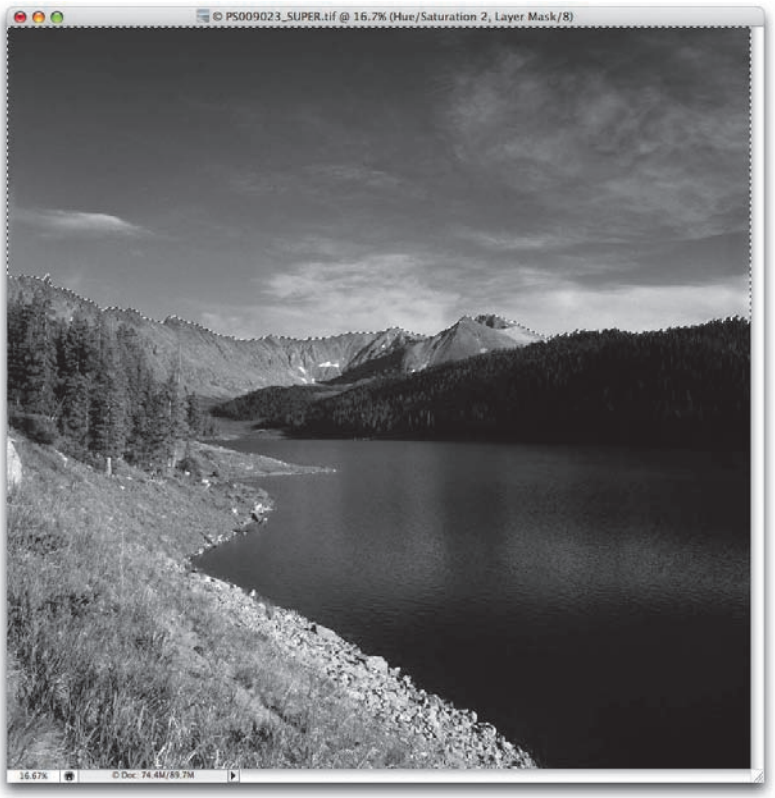

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FIGURE 4.10
In this example, I used a combination of the Quick Selection and Lasso tools to select the sky.

Next, choose the color you'd like to apply to the selected area by using the Color Picker. This is now your Foreground Color. Then add a Hue/Saturation adjustment layer and click the Colorize option in the Hue/Saturation dialog box. Keep the Preview option enabled to view the color in the image window. If necessary, move the adjustment sliders until the color appears the way you like it (see Figure 4.11).

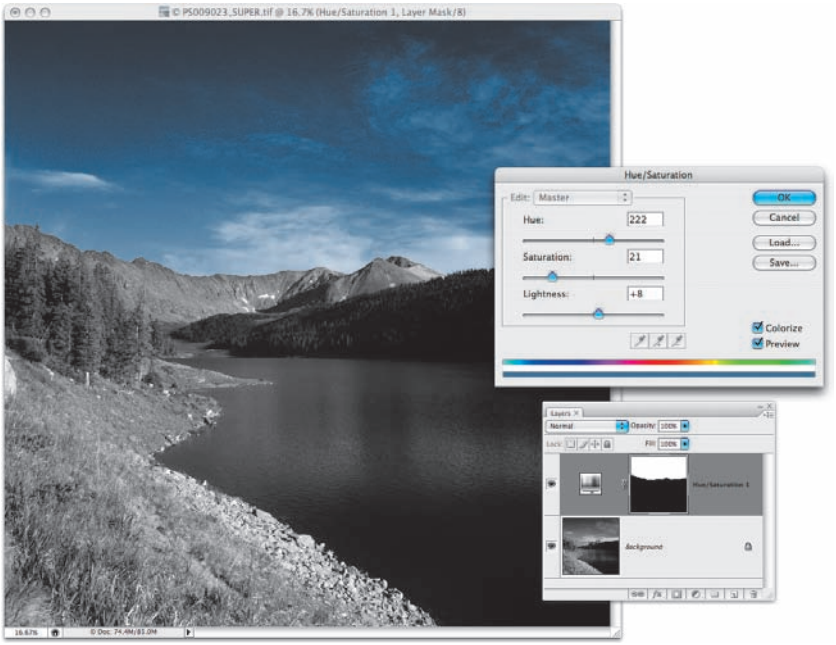

FIGURE 4.11
To add the foreground color, you must enable the Colorize option. Adjust the Hue, Saturation, and Lightness sliders as needed.

Click OK to add the adjustment layer. If you need to, you can always mute the color a bit by reducing the adjustment layer's opacity. This reveals some of the gray from the layer underneath.

You'll need to add a separate Hue/Saturation adjustment layer for every color you add. Repeat the preceding steps for each color (see Figure 4.12).

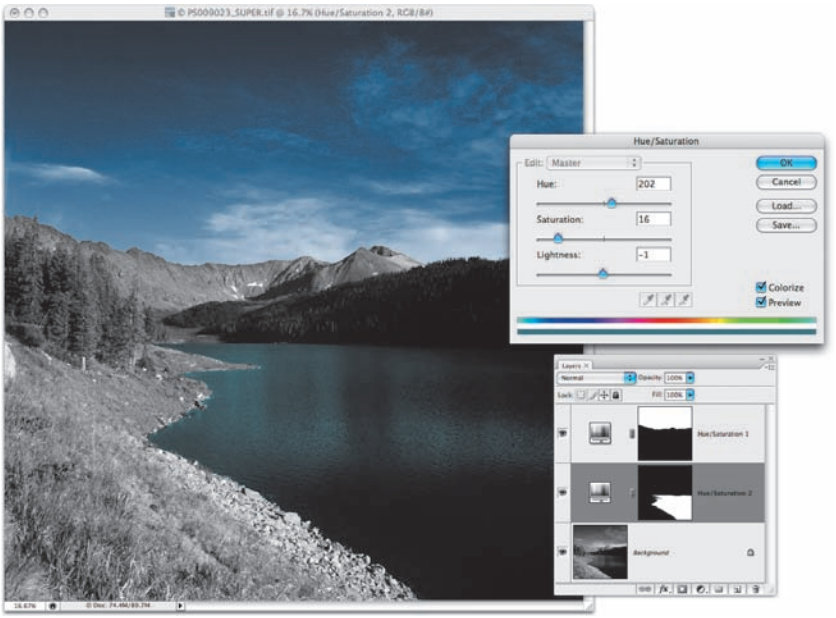

FIGURE 4.12
To colorize the water in this image, I changed the foreground color to a much deeper blue, then selected the water with the Quick Selection and Lasso tools, and added a separate Hue/Saturation adjustment layer.

Brushes, Layers, and Blend Modes

Another much more hands-on way of adding color to a grayscale photo is to apply it with the Brush tool. For editing purposes, it's best to apply each color on its own separate layer. Make sure the image is converted from grayscale to RGB, and then access the Brush tool from the Tools palette.

Choose the foreground color you'd like to paint with by using the Color Picker. Before you start painting, you may want to save the color in the Swatches palette for later use. To display the Swatches palette, choose Window ➢ Swatches. You can save the color in the Swatches palette by clicking in the gray area at the bottom of the palette underneath the swatches (if it's in Thumbnail view—see Figure 4.13), or choose New Swatch from the palette menu. Enter a name for the swatch in the dialog box that appears and click OK. You should do this for every color layer you add.

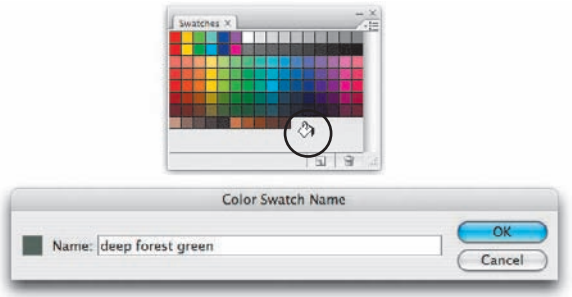

FIGURE 4.13
Hover the cursor over the gray area at the bottom of the palette and click when you see the icon change to display a paint can. Name the swatch and click OK to add it to the list.

Next, Option/Alt+click the New Layer button at the bottom of the Layers palette. In the New Layer dialog box that appears, name the layer after the color you've chosen (you can use the same name that you gave the swatch), and set the layer blend mode to Color with an Opacity setting of 50% (see Figure 4.14). Click OK to close the dialog and add the new layer.

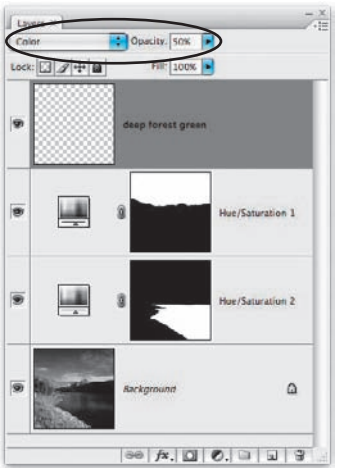

FIGURE 4.14
Create a separate layer for every color you apply. Set the blend mode to Color and the Opacity to 50%.

In the Options palette, choose a soft brush and click the Airbrush option. To start out with, change the Flow setting to 20%. The airbrush builds up color the longer you leave it in one place; therefore, this setting gives you the most control. Keep the Brush Mode set to Normal, because the blend mode of the layer has already been changed to Color. Begin painting over the areas of the photo where you'd like the color applied (see Figure 4.15).

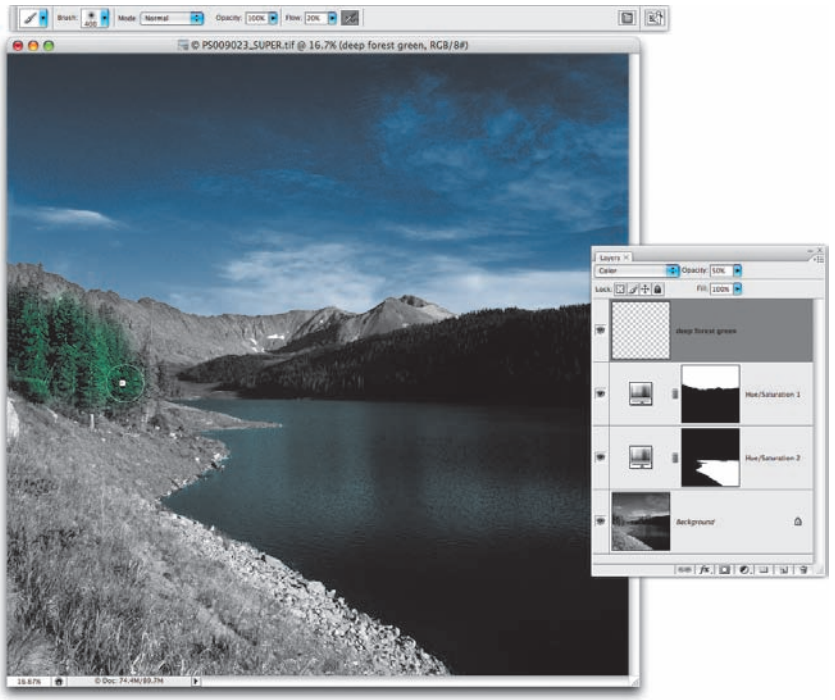

FIGURE 4.15
Paint over the areas where you'd like the color applied.

BLEND MODE SETTINGS: BRUSH OR LAYER?

The Brush tool works the same way whether you change the mode in the Options palette or in the Layers palette blend mode menu. However, painting with the layer set to Color rather than the brush gives you the option to change the blend mode later, should you need to.

As you paint, don't worry about being precise. It's okay if the edges are not perfect in your hand-tinted photo. Keep your strokes loose and free-flowing. As you add color layers, the edges will overlap, and it is okay if the colors interact with each other (see Figure 4.16). Keep in mind that you can always edit the color layers later with the Eraser tool.

As you paint, you can adjust the brush size by pressing the left and right bracket keys, and adjust the Flow setting by pressing the numbers 1 through 0 on your keyboard—1 through 9 being 10%–90%, and 0 being 100%. For an even more hands-on feel, try painting with a graphics pen and tablet.

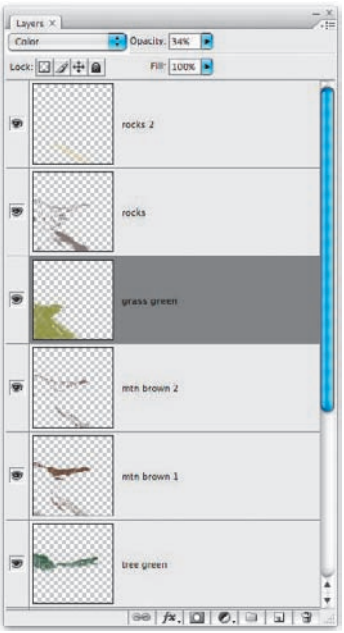

FIGURE 4.16
This is what the painted color layers look like without the photo.

Because we're painting using the Color blend mode, the darker the gray areas are in the photo, the more saturated the applied colors will appear. You can offset this some by lowering the opacity level of the more-intense-colored layers (see Figure 4.17).

FIGURE 4.17
For the final colorized image, I reduced the opacity levels of some of the applied color layers.

Converting Color to Grayscale

There are several ways to convert color images to black-and-white, but you should know that not every method gives you good print results. Depending on the images you're working with and the type of print job you're designing, the following may not be the best conversion methods, because they all require a bit of tweaking afterward. They are best used for images that are to be printed at a very small size, or for images used in a layered Photoshop composition. For high-quality black-and-white print layouts and designs, the best conversion option is to either apply a new Black And White adjustment layer or use the Channel Mixer.

Convert to Grayscale Mode Choosing Image ➢ Mode ➢ Grayscale is the quickest and easiest way to convert a color image to black-and-white—but it's certainly not the best. When switching to Grayscale mode, you're telling Photoshop to go ahead and apply a standard formula for mixing the Red, Green, and Blue channels together. This generally results in a flat, low-contrast black-and-white image that is not balanced enough for high-quality print layouts or designs.

Desaturate To strip the color from every pixel in an image, choose Image ➢ Adjustments ➢ Desaturate, or press ⌘+Shift+U / Ctrl+Shift+U . This is the same as moving the Saturation slider in the Hue/Saturation dialog box all the way to zero. After applying the command, the image is still RGB. Converting to Grayscale mode after applying the command retains more midtone information than if you had made the conversion without desaturating first (see Figure 4.18).

FIGURE 4.18
The original image (left); the Flat Grayscale conversion (middle); the image desaturated first, and then converted to Grayscale.

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Select a Channel You can also convert an image to black-and-white by using Channels. Preview the RGB channels by clicking on each one in the Channels palette, and select the one with the best contrast. This is usually the Green channel, which contains the most detail (see Figure 4.19). Then choose Image ➢ Mode ➢ Grayscale to delete the other channels in the image. Or if you prefer, you can also copy/paste or choose Duplicate Channel from the Channels palette menu to save the converted image in a new document.

Gradient Map By choosing Image ➢ Adjustments ➢ Gradient Map, you can map a black-to-white linear gradient (default Foreground to Background colors) to a color image. This usually results in a fairly good high-contrast black-and-white image (good for newsprint layouts), but tends to darken the shadow areas a bit too much and blows out the highlights. To accommodate

for this, you can lighten the shadow areas and darken the highlights by making either a Levels or Curves adjustment (see Figure 4.20).

FIGURE 4.19
The Red channel contains the most brightness (left). The Green channel contains the most detail and some of the image brightness (middle). The Blue channel subtracts brightness from the image and also contains the most noise (right).

FIGURE 4.20
Gradient Map conversions result in a fairly good high-contrast black-and-white image, but tend to overdarken the shadow areas and blow out the highlights (left). Making a Levels or Curves adjustment helps balance the image (right).

Note that you can also apply a gradient map and the subsequent Levels or Curves adjustments as adjustment layers. If you choose to use adjustment layers, make sure that when you are through correcting the image, you make a flattened duplicate by choosing Image ➢ Duplicate and enable the Duplicate Merged Layers Only option in the dialog box. Doing so retains the original image with the adjustment layers. To complete the grayscale conversion on the flattened duplicate image, choose Image ➢ Mode ➢ Grayscale.

Lab Conversion You can also convert a color image to black-and-white based on the Lightness channel in Lab color mode. Choose Image ➢ Mode ➢ Lab Color, and then delete both the a and b color channels in the Channels palette. This results in an accurate rendering of luminance values, but the image also lacks some contrast (see Figure 4.21). Deleting the a and b channels automatically puts the image in Multichannel mode. Choose Image ➢ Mode ➢ Grayscale to complete the conversion.

FIGURE 4.21
First convert the image from RGB to Lab color mode (left). Then delete the a and b color channels, leaving only the Lightness channel (right).

WHAT IS LAB COLOR MODE?

RGB and CMYK modes are both device specific, meaning that they don't actually describe a color. An RGB or CMYK specification is like a set of instructions that your output device, such as a monitor, ink-jet printer, or printing press, refers to in order to produce color. Different output devices can interpret the same specifications differently. This is why color made up of the same RGB values can appear different on multiple monitors, or the same CMYK build can print differently on various printers.

Lab color is device independent, meaning that it describes a color's *appearance* rather than the components that make it up (RGB or CMYK). Images saved in Lab mode depend on you, or Photoshop, or your color management software to decide what RGB or CMYK values are necessary to display color on a chosen output device.

Lab images contain three channels: the Lightness channel, plus the a* (a-star) and b* (b-star) channels. The Lightness channel represents the luminance values available in the image. The a* channel represents how red or green a color is (negative values represent green, and positive values represent red). The b* channel represents how blue or yellow the color is (negative values represent blue, and positive values represent yellow).

Luminance Map It is also possible to make a grayscale conversion based on an image's luminance map. To make a luminance map selection, ⌘/Ctrl+click on the composite color channel icon (RGB or CMYK) in the Channels palette. Then choose Select ➢ Save Selection. In the dialog box that appears, choose to save the selection as a new file. The new file is automatically placed in Multichannel mode. Choose Image ➢ Mode ➢ Grayscale to complete the conversion.

Black And White Adjustment Layer

Photoshop CS3 now features a Black And White adjustment command and adjustment layer. You can use either to convert color images to black-and-white or to apply a tint effect. Using the adjustment layer instead of the Image ➢ Adjustment ➢ Black And White command offers more flexibility and control, because it allows you to make changes to the adjustment at any time after it is applied.

This is a much better grayscale conversion method than those listed earlier, simply because it offers you more flexibility and control. The Black And White adjustment layer dialog box contains a series of sliders that allow you to modify the influence of red, yellow, green, cyan, blue, and magenta in the resulting black-and-white image (see Figure 4.22).

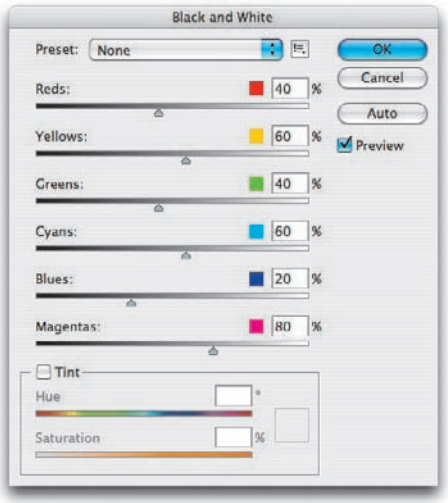


FIGURE 4.22
The Black And White adjustment layer dialog box

You can use these sliders to lighten or darken any areas that you'd like to emphasize in your black-and-white print image. For example, in the image shown in Figure 4.23, choosing Image ➢ Mode ➢ Grayscale resulted in a flat black-and-white image with not enough contrast between the foreground and background. Notice how the model's hair practically blends in with the trees in the background. By instead applying a Black And White adjustment layer, the background was lightened by increasing the yellow and green values. The red value was lowered to compensate for the blown-out highlights that appeared in the model's skin as a result of the background adjustment.

When you are finished adjusting the image, make sure that you make a flattened duplicate by choosing Image ➢ Duplicate. Then enable the Duplicate Merged Layers Only option in the dialog box. Doing so retains the original image with the Black And White adjustment layer. To complete the grayscale conversion on the flattened duplicate image, choose Image ➢ Mode ➢ Grayscale.

FIGURE 4.23
The original color image (left); the Flat Grayscale conversion (right); applying a more balanced Black And White adjustment layer (bottom).

Real World Scenario

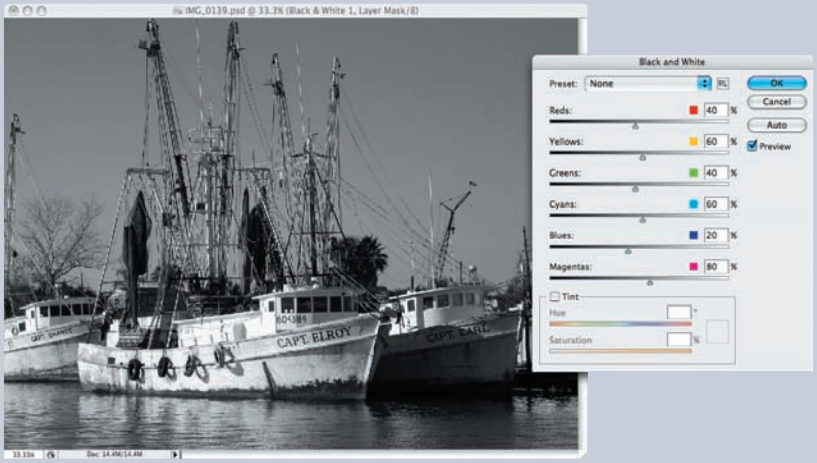
Converting to Grayscale with the Black And White Adjustment Layer

Converting a color image to grayscale for print can be very difficult. Simply applying the Image ➢ Mode ➢ Grayscale command rarely gives you optimal print results. You usually have to do quite a bit of tweaking with Levels or Curves afterward in order to balance the amount of contrast and detail present in the image.

The new Black And White adjustment in CS3 allows you to make your grayscale conversion *and* tweak the image all at once by using the same dialog box. If you use the adjustment layer instead of the menu command, you have even more flexibility, because it allows you to make changes to the adjustment at any time after it is applied.

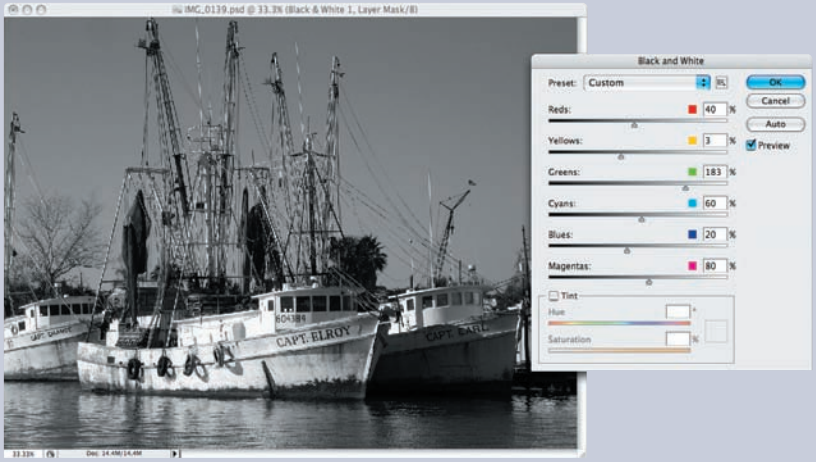
The Black And White adjustment dialog box contains a series of sliders that allow you to modify the influence of red, yellow, green, cyan, blue, and magenta in the resulting black-and-white image. In the example shown here, the default Black And White settings produced some fair results; but when compared to the color version, the converted grayscale image appears flat and lifeless. By adjusting the sliders in the Black And White adjustment dialog, you can enhance contrast in the image and ensure that you'll get a great print out of it.

The Original Image



Previewing the Default Black And White Settings

By lowering the amount of yellow influence in the image, we can bring out some of the detail in the rusted areas of each ship. Increasing the green value lightens the ship's sails, also bringing out more detail.



Lowering the Yellow and Increasing the Green

By increasing the cyan and blue percentages, we can lighten the sky background and put more emphasis on the forefront objects (the boats). By lowering the red percentage, we can darken the bottom area of the boat as well as the letters along the bow.

Increasing the Cyan and Blue, and Lowering the Red

When compared side by side to the same image converted by using the Image ➢ Mode ➢ Grayscale command, you can see how using the new Black And White adjustment feature offers you much more tonal control.

Image ➢ Mode ➢ Grayscale Conversion

Black And White Adjustment

Channel Mixer Adjustment Layer

A good alternative to the Black And White adjustment command for converting color images to grayscale is the Channel Mixer. Once again, using the Channel Mixer adjustment layer rather than the Image ➢ Adjustment ➢ Channel Mixer command offers much more flexibility and control, because it allows you to make changes to the adjustment at any time after it is applied.

The Channel Mixer is great for applying grayscale conversions to images whose colors contain noticeably different hues but similar light and dark values.

It's best to make this conversion to an RGB image. If your image is not already in RGB mode, choose Image ➢ Mode ➢ RGB Color, and then apply a Channel Mixer adjustment layer. In the Channel Mixer dialog box that appears, select the Monochrome check box in the lower-left corner. Also make sure that the Preview check box is selected (see Figure 4.24).

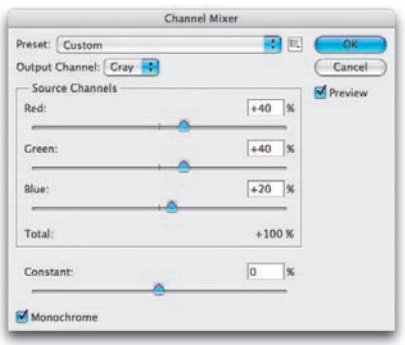


FIGURE 4.24
Enable the Monochrome and Preview options in the Channel Mixer dialog box.

Move the Red, Green, and Blue sliders to modify each channel's influence in the resulting black-and-white image. Keep in mind that the Red channel contains the most brightness; the Green channel contains the most detail; and the Blue channel contains the most noise. For a well-balanced black-and-white image, the total for all three channels should add up to 100%.

Photoshop also includes several Channel Mixer preset settings. Unless you've already mastered the Channel Mixer dialog box, you may want to start out by previewing these presets first. Choose one that comes closest to the way you'd like your black-and-white image to appear, and then modify the settings as needed (see Figure 4.25). If you'd like, you can also save your own custom presets.

When you are through adjusting the image, make sure that you make a flattened duplicate by choosing Image ➢ Duplicate and enable the Duplicate Merged Layers Only option in the dialog. Doing so retains the original image with the Channel Mixer adjustment layer. To complete the grayscale conversion on the flattened duplicate image, choose Image ➢ Mode ➢ Grayscale.

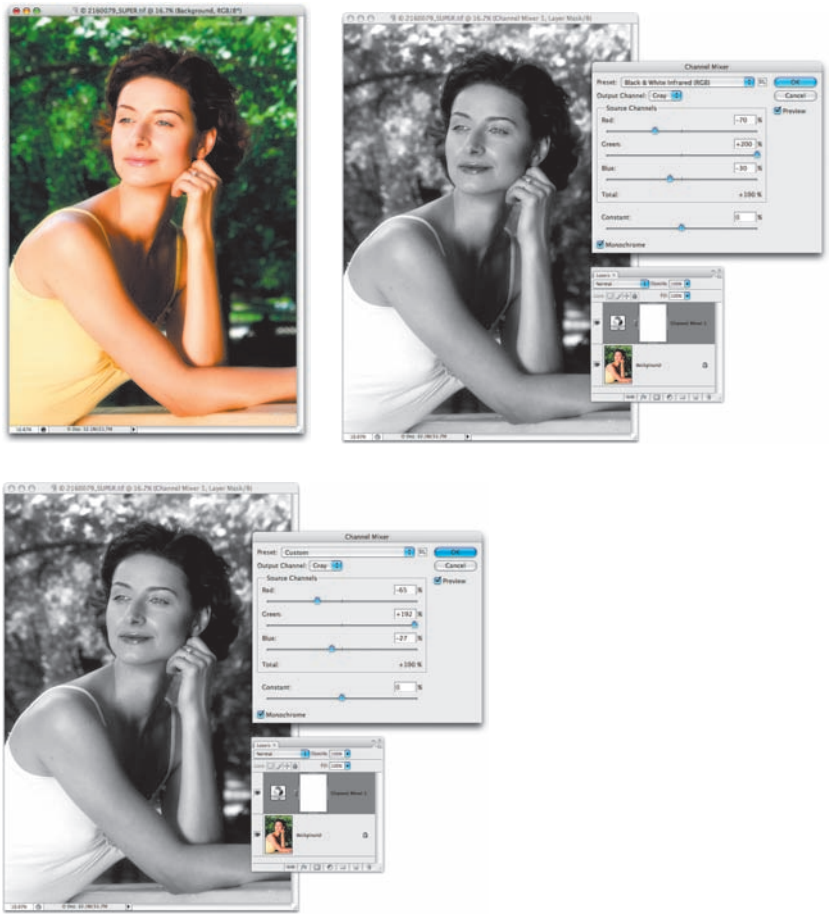


FIGURE 4.25
The original color image (left); the Black and White Infrared (RGB) preset (right); a slightly modified version of the preset settings (bottom).

Applying Spot Color in Photoshop

Photoshop also allows you to work with spot colors (also referred to as *custom colors*). If you need to match a specific color used in a corporate logo, or if you'd like to include a bright orange, green, or metallic color that you can't achieve with CMYK process inks—spot colors are the way to go. They can also be used to create duotones and tint effects, or can be combined with grayscale in a two- or three-color design.

Spot Color Defined

Four-color process is a printing method that produces a wide range of colors by overlapping halftones (tints) of four colors: cyan, magenta, yellow, and black. Our eyes blend these halftones together, and allow us to see the various colors used in the design the way we're supposed to.

Spot color printing on the other hand, does not overlap halftones. Instead, these specific, premixed inks are printed on separate *plates*. Spot colors can be added to a four-color process print job by printing them alongside or on top of process-color images. This is what is sometimes referred to as a *fifth* or *sixth* color. For example, a metallic color or a varnish that cannot be simulated in process-color printing can be added to a four-color process print design by using spot color plates. You can also enhance a specific color in a CMYK image by adding a spot color "bump" plate.

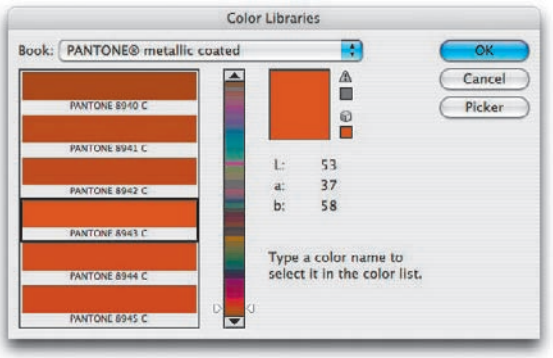
Adding a Spot Color Channel

Adding a "fifth" color to a four-color process CMYK file in Photoshop means adding a fifth channel, called a *spot color channel*. To add a spot color channel, choose New Spot Channel from the Channels palette menu (see Figure 4.26). You can also do this by ⌘/Ctrl+clicking the New Channel button at the bottom of the palette.

FIGURE 4.26
Adding a spot color channel

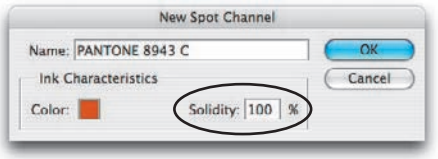
In the dialog box that appears, click the color swatch to launch the Color Picker. Click the Color Libraries button and choose a spot color swatch book type from the Book drop-down list. The default color model is Pantone Solid Coated, as shown in Figure 4.27. Note that the Book drop-down list includes process-color swatch books in addition to spot color books, even though they are meaningless here. Choose a color from the list and click OK. Photoshop automatically places the chosen spot color swatch's name in the New Spot Channel dialog's Name field.

FIGURE 4.27
The Color Libraries dialog box



The value entered in the Solidity field determines how the spot color will be displayed onscreen (see Figure 4.28). This allows you to preview onscreen what the overlapping spot color will look like when printed. At 100% solidity, the color is completely opaque (metallic inks); at 0% solidity, it is transparent (varnishes). If you're not sure what solidity value to use, your printer can provide you with the proper settings for chosen spot colors.

FIGURE 4.28
The Solidity value determines how the spot color will be displayed onscreen.



CONVERTING ALPHA CHANNELS TO SPOT CHANNELS

Photoshop also allows you to convert a regular alpha channel into a spot color channel. To do so, double-click the alpha channel in the Channels palette to access the Channel Options dialog box. Then select the Spot Color radio button, choose a color and solidity value, and click OK.

After you create the spot color channel, Photoshop automatically selects it for you. You can then paint or add text in the channel by using black, white, or gray. Black represents solid spot color, white represents no ink at all, and gray is a tint of the spot color. When you are finished painting or adding text, return to the composite RGB or CMYK channel by selecting it in the Channels palette or by pressing ⌘/Ctrl+~ (see Figure 4.29).

FIGURE 4.29
In this example, text was added to the Pantone 8943 metallic spot color channel at 100% solidity.

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CONVERTING LAYERS TO SPOT COLORS

One frustrating thing about working with spot colors in Photoshop is that you can't use them with layers. However, you can work around this by setting up the spot color artwork in a layer before you add the spot channel. Follow these steps:

1. In a new layer, choose black as the foreground color and add any text or brush strokes that you'd like to print in a spot color.
2. ⌘/Ctrl+click the layer icon in the Layers palette to load a selection of the spot color artwork.
3. Now create the spot color channel. Photoshop automatically fills the selection with black in the spot channel.
4. Hide or delete the layer.

Spot Color Knockout and Trapping

Spot color inks (with the exception of metallic inks) are never fully opaque. As a result, trying to print a solid PMS ink over a CMYK image generally results in mottled color. To avoid overprinting problems, you must manually knock out the image areas underneath the spot color (unless you are using spot color as a "bump" plate or a varnish, in which case you will always want to overprint and *not* knock out).

Knocking Out Manually in Photoshop Layout applications such as InDesign and QuarkXPress automatically knock out the areas underneath a spot color when the file is output, but

that is not the case in Photoshop. You must use the following procedure to knock out the image areas manually:

1. Load a selection based on the spot color channel by ⌘/Ctrl+clicking its thumbnail in the Channels palette.
2. If the background colors are lighter than the overlying spot color, contract the selection to accommodate for trapping (see the next section for more on this technique).
3. Create a new layer in the Layers palette.
4. Choose Edit ➢ Fill to access the Fill dialog box, and then fill the selection with white.

You could fill the background with white rather than creating a new layer, but this would not allow you to make a change later, should you need to. If you have two spot colors that overlap, you need to knock out only the image area beneath the lower spot channel.

Trapping *Trapping* is a process that compensates for any misregistration that occurs on press. Paper shift is inevitable on a printing press, and this is what causes misregistration. When working with spot colors, you must make sure that your knockouts are trapped properly. Otherwise, a white sliver will appear between abutting colors in your print job.

When building traps in Photoshop, the basic rule to follow is to always make the lighter color overlap the darker color. If the background color is lighter than the spot color, you must *choke* the background by making the area that you knock out slightly smaller. After loading the spot color channel as a selection (see step 1 in the preceding knockout procedure), choose Select ➢ Modify ➢ Contract and enter a value of 1 pixel in the dialog that appears. Click OK to apply the modification, and complete steps 3 and 4 as described in the previous section.

If the spot color is lighter than the background, you must *spread* the spot color. After you knock out the underlying image area by using the preceding steps, select the spot color channel in the Channels palette and choose Filter ➢ Other ➢ Minimum. The Minimum filter allows you to expand the image in the channel so that it overlaps the background. Enter a 1-pixel amount in the dialog box that appears and click OK.

If your printer gives you a specific trap size to use in millimeters or points, you may want to use Photoshop's Trap dialog box instead (see Figure 4.30). Convert the image to CMYK mode, and then select the spot color channel in the Channels palette and choose Image ➢ Trap. Choose millimeters, points, or pixels from the menu in the dialog, enter the value, and click OK.

FIGURE 4.30
The Trap dialog box allows you to enter a value in millimeters, points, or pixels.

Saving Images with Spot Colors

After you're finished preparing spot color graphics in Photoshop (including duotones, described in the next section), you'll need to save them in a specific file format in order for them to output

properly. The file format you should use depends on what layout application you'll be placing the images in. If you're using QuarkXPress, save the images in the DCS 2.0 format. If you're using InDesign, save them in either the DCS 2.0 or the native Photoshop (PSD) format.

Creating Duotones and Tint Effects

When your print budget is limited, working with custom color duotones and tints can become a necessity. But even when it's not, duotones and tints can add some nice subtle color effects to a four-color print job. Photoshop provides us with several ways to add color sparingly—yet tastefully—to your design work.

Duotone Mode

Smaller print budgets can sometimes limit you to a two-spot-color design, in which case Photoshop's duotone mode is the perfect solution. Duotone mode allows you to create flexible yet stylish images quickly and easily.

You must start out with a grayscale image. If your image is currently in RGB or CMYK mode, you can use any of the methods described in the previous section to convert it to grayscale. You can then convert the grayscale image to Duotone mode by choosing Image ➢ Mode ➢ Duotone. This automatically launches the Duotone Options dialog box (see Figure 4.31).

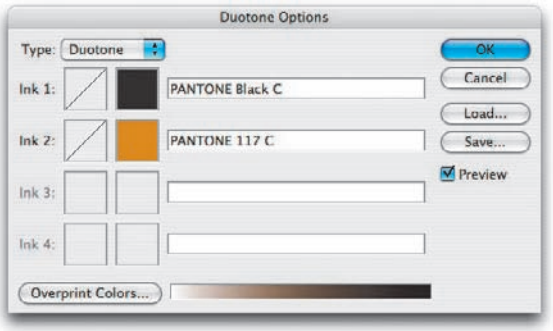

FIGURE 4.31
The Duotone Options dialog box

The curves settings for Ink 1 and Ink 2 in the Duotone Options dialog box let you control precisely how each color is applied to the range of tones in your image. You can either set your own curves or use one of the Photoshop presets. To use one of the presets, click the Load button and choose one from the Presets folder.

To create your own color curves, click the color swatch for Ink 1 and Ink 2 to access the Color Picker. Click the Color Libraries button and choose a spot color swatch book type from the Book menu. Select a color and click OK. After the colors are chosen, click the curves box next to each color swatch and adjust how the color is applied by dragging the curve (see Figure 4.32). Make sure the Preview check box is selected in order to see the applied color change as you make your curves adjustment (see Chapter 5, "Tonal and Color Correction," for a more in-depth explanation on how to use Curves).

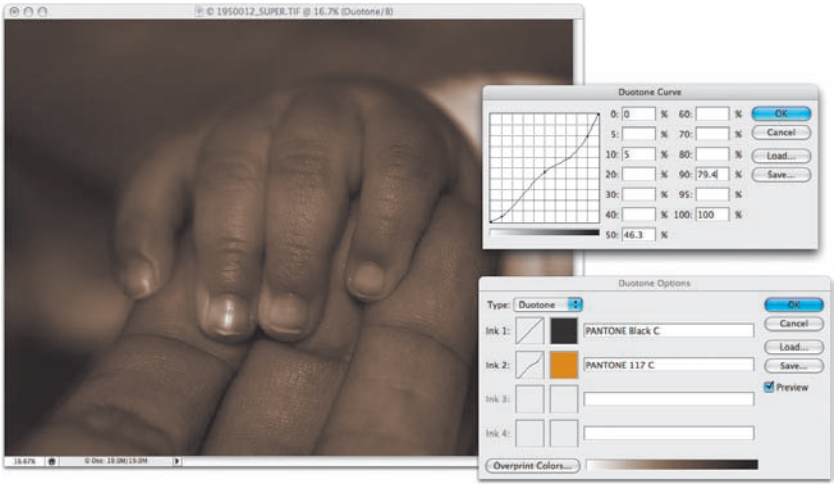

FIGURE 4.32
Drag the curve in either direction to control how each color is applied to the tonal range of the image.

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Sepia and Other Tint Effects

Photoshop also allows you to apply sepia tones and other tint effects to grayscale images. There are several ways to apply these kinds of effects besides using Duotone mode. By using the following tint techniques, you can apply color to a grayscale image that has been converted to either RGB or CMYK mode.

Black And White Adjustment Layer This new adjustment layer allows you to convert color images to black-and-white or to apply a tint effect. Using the adjustment layer instead of the Image ➢ Adjustment ➢ Black And White command offers more flexibility and control, because it allows you to make changes to the adjustment at any time after it is applied.

Select the Tint check box at the bottom of the Black and White dialog to enable the Tint feature (see Figure 4.33). Make sure the Preview check box is selected in order to see the applied color. The default color is a light sepia tone, but this can be changed by clicking the swatch and choosing a different color with the Color Picker, or by adjusting the Hue slider. To control how vivid the color tint appears, adjust the Saturation slider. Click OK to apply the adjustment.

Hue/Saturation Adjustment Layer Colorize Option You can also add a tint effect to a grayscale image that has been converted to RGB or CMYK by applying a Hue/Saturation adjustment layer. Simply click the Colorize check box and move the Hue and Saturation sliders until the tint appears the way you'd like it (see Figure 4.34).

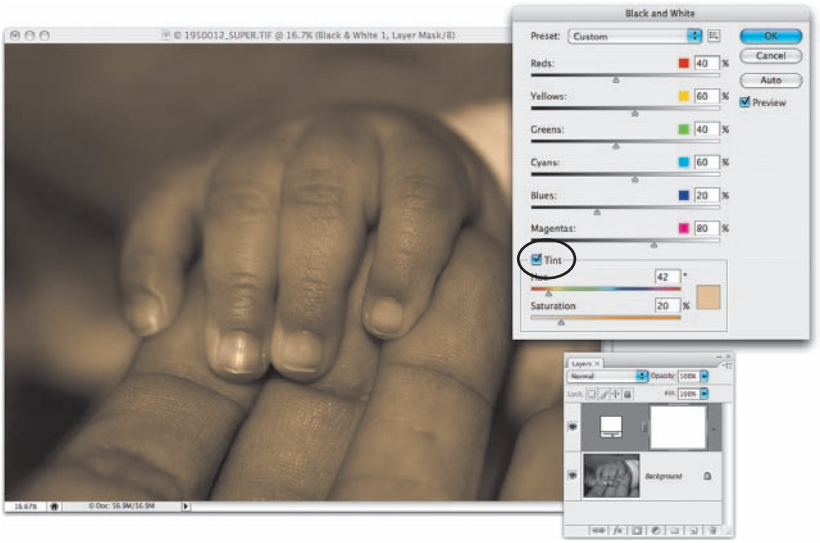


FIGURE 4.33
Select the Tint check box at the bottom of the Black And White adjustment layer dialog box to enable the Tint feature.

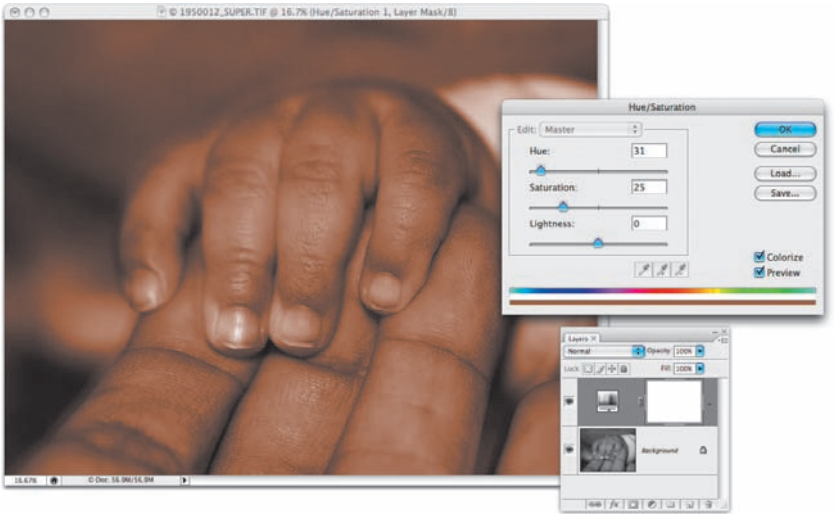


FIGURE 4.34
A Hue/Saturation adjustment layer can also be used to apply a color tint.

Color Overlay Layer Style Another way to tint an image is to apply a Color Overlay layer style. First convert the Background layer by double-clicking it in the Layers palette and clicking OK when the Layer Options dialog box appears. Next, choose Color Overlay from the Layer Styles pop-up menu at the bottom of the Layers palette. Then click the color swatch at the top of the dialog and choose a color with the Color Picker. After the color is chosen, click OK to close the Color Picker. Finally, choose Color from the Blend Mode list and set the opacity for the color tint. Click OK to apply the layer style (see Figure 4.35).

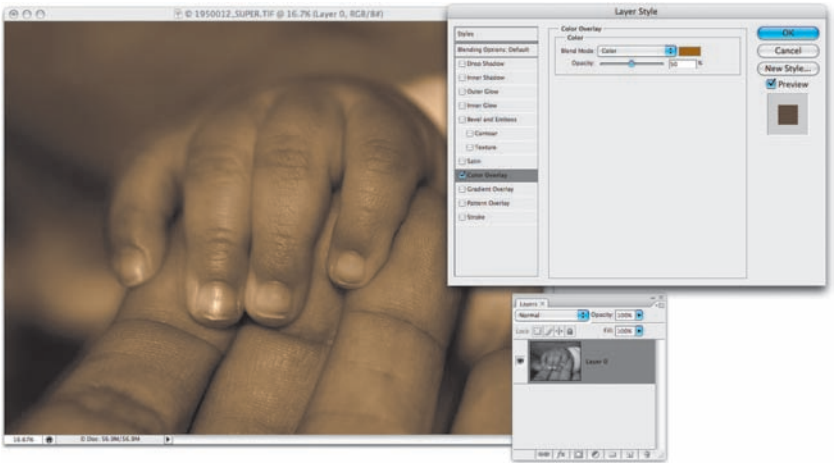


FIGURE 4.35
Set the Blend Mode to Color in the Color Overlay layer style dialog box.

Gradient Map Adjustment Layer By applying a Gradient Map adjustment layer, you can add a tint to an image no matter whether it is grayscale or full color. Again, using the adjustment layer instead of the Image ➢ Adjustment ➢ Gradient Map command offers more flexibility and control, because it allows you to make changes to the adjustment at any time after it is applied. After you've added a Gradient Map adjustment layer, choose a preset gradient from the dialog, or if you've already prepared and saved one, choose a custom gradient from the gradient list. Click OK to apply the gradient map. Set the layer blend mode to Color to finalize the tint effect. If necessary, lower the layer opacity value (see Figure 4.36).

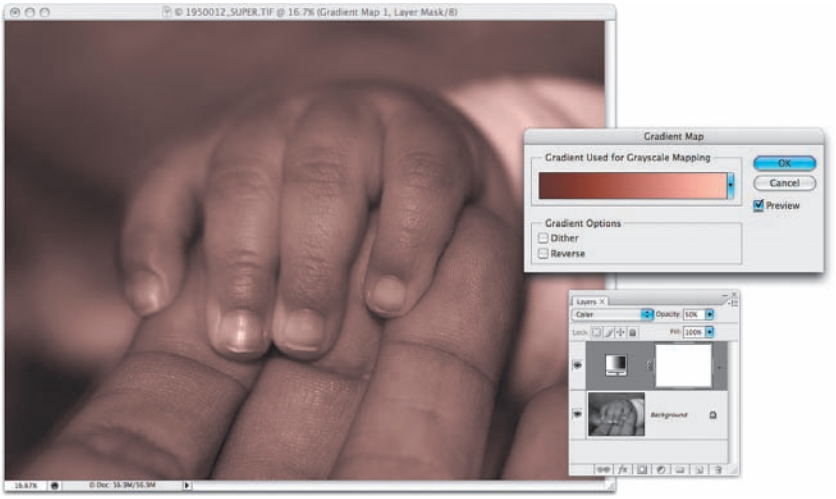


FIGURE 4.36
Gradient Map adjustment layers allow you to apply tint effects by using your own custom gradients.

The Bottom Line

Replace Colors in an Image Replacing colors is one of the most common tasks print designers and production artists are faced with. Using what you learned about color replacement in Photoshop CS3, identify which tool is best for the task at hand.

> **Master It** Determine the color areas that you'd like to replace. If the color replacement task requires a selection, identify the best selection tool to use for the job and make the selection. Choose one of the color replacement techniques described in this chapter and proceed to recolor the image.

Colorize a Grayscale Image Adding color to a grayscale image is definitely a hands-on process. There is no "one-click," quick and easy way to go about hand-tinting an image. However, if the images in your print design or layout require it, you can get really creative when performing this task.

> **Master It** Open a grayscale image or convert an RGB or CMYK image to grayscale mode.

Convert a Color Image to Grayscale There are several ways to convert color images to black-and-white, but not every method gives you good print results. Depending on the images you're working with and the type of print job you're designing, some conversion methods may require quite a bit of tweaking afterward.

> **Master It** Open an RGB or CMYK image. Determine how it will be used in your print design and ultimately how it will be output. Choose one of the grayscale conversion techniques described in this chapter and proceed to convert the image to black-and-white.

Add a Spot Color Channel If you need to match a specific color used in a corporate logo, or if you'd like to include a bright orange, green, or metallic color that you can't achieve with CMYK process inks—spot colors are the way to go.

> **Master It** Open a grayscale or color image that you'd like to add a spot color channel to. The image can be a two- or three-color graphic, or a five- or six-color graphic, depending on how you are using spot colors. Determine whether to overprint or knock out the added spot colors.

Create a Duotone Smaller print budgets can sometimes limit you to a two-spot-color design, in which case Photoshop's duotone mode is the perfect solution. Duotone mode allows you to create flexible yet stylish images quickly and easily.

> **Master It** Open a grayscale image or convert an RGB or CMYK image to grayscale mode.

Chapter 5

Tonal and Color Corrections

One of the most frequent and important image-editing tasks that all graphic designers are faced with is color correction. Unfortunately, a majority of the photographs you wind up working with are rarely perfect. They usually require a bit of tweaking, and some might even need a complete overhaul. The good thing is that there are many tools available in Photoshop for adjusting images—but which ones are the best to use for high-quality output? In this chapter, I'll set you on the right path and show you the best tools and methods to use for making tonal and color corrections for print images in Photoshop CS3.

In this chapter, you will learn to:

- Color-correct an image using Levels or Curves
- Use Selective Color to fine-tune a CMYK image
- Use Photo Filter to enhance or correct color temperature
- Apply lighting adjustments using Shadows/Highlights

Image Adjustment Fundamentals

The images that you use in your layouts should draw your audience into the design and ultimately help communicate your message. Therefore, image color is essential. The overall tonal quality of your images must be exciting, yet balanced—not lifeless, overly dark, or blown out. It's your job to correct and enhance them so that they "pop" right off the printed page.

But before we get started with tonal manipulation and the best ways to color-adjust images for print, you must understand that there is no magic formula for this task. Color adjustment is truly a delicate balancing act, and the amount of correction you should apply can vary from image to image. It's important to learn how to identify what needs to be fixed in an image before you start making corrections.

You must also understand that color correction means data loss. Image adjustment involves "stretching and squeezing" various parts of the image's tonal range, and in the process, losing image data. This is not necessarily a bad thing, as long as you make sure to throw away what you don't need and to keep what you do.

Color Correction and Data Loss

Color correction is a subtractive process. The more adjustments you make, the more color data you lose. Although this is par for the course with any image adjustment, there are a few things you should avoid when it comes to tonal correction:

Never Apply Two Consecutive Edits That Counteract Each Other For example, never lighten the midtones in an image, and then proceed to do the exact opposite by darkening them. The only way to make these kinds of drastic edits and avoid *posterization* (creating stair-stepping gray levels as opposed to smooth gradations), is to use nondestructive adjustment layers whenever possible.

Be Careful Not to "Stretch" Too Far When "stretching" the tonal range of an image, pixels that previously shared the same values can be made different by several levels. Stretching the tonal range too far can cause the image to display noticeable jumps in tone or color.

Don't "Oversqueeze" When "squeezing" the tonal range of an image, pixels that previously contained different values become compressed to the same value. Compress too much, and you will lose valuable image detail.

Enhance Detail—Minimize Noise Adjacent pixels with different values are what make up detail in an image. In areas where the difference is slight, detail can be accentuated by differentiating the pixels even more. However, if the image contains noise, enhancing the detail also enhances the noise. The challenge is to enhance image detail just enough without overaccentuating any noise.

Now that you know what *not to do* when color-correcting images in Photoshop, let's focus on what you can do to make the task a little easier:

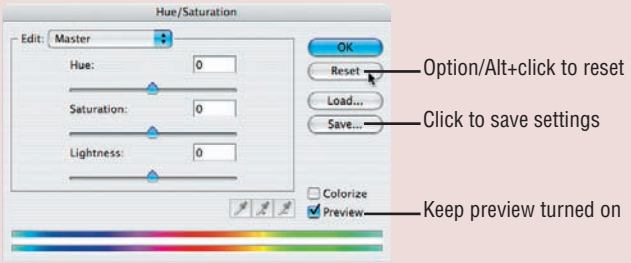
Work with 16-Bit Images 16-bit-per-channel images may be larger in file size, but they offer you considerably more headroom than traditional 8-bit images when it comes to color correction. 8-bit images contain up to 16.8 million colors, but 16-bit images contain *trillions of* colors. Therefore, data loss is much less apparent when working with high-bit images. If you're working with RAW files, remember that the Camera Raw plug-in allows you to open them in Photoshop as either 8-bit or 16-bit (see Chapter 10, "Editing in Camera Raw"). Working in 16-bit mode can be useful if the corrections you expect to make are extreme, as they can cause posterization in 8-bit images due to data loss.

Use Adjustment Layers Whenever Possible With most image adjustment commands, such as Curves or Levels, you have two options: to access the dialog box from the Image ➢ Adjustment submenu and apply the change, or to use the adjustment layer equivalent. Choosing the menu command applies a permanent change to your image that can be undone only by using the Undo command (⌘/Ctrl+Z) or by selecting a previous state in the History palette. Edits cannot be made to the adjustment unless the command is undone first. Take one too many steps past your history limit, and you're stuck with permanent data loss that cannot be retrieved. Adjustment layers, on the other hand, allow you to edit or undo the adjustment anytime—without any limitations or penalties.

Choose Edit ➢ Fade to Tone Down an Adjustment If you've chosen not to work with adjustment layers, you can always use the Edit➢Fade command (⌘/Ctrl+Shift+F) to reduce the opacity of the last applied adjustment. However, there is a limitation to using Edit ➢ Fade, as Photoshop allows you to apply the Fade command only immediately after applying the adjustment.

Adjustment Dialog Box Tips

The following tips apply to both the Image ➢ Adjustment dialog boxes and the adjustment layer dialog boxes.



Enable the Preview Option Enabling the Preview check box allows you to see your adjustments displayed in the image window as you make them. With this option enabled, you can fine-tune your adjustment settings before closing the dialog. Unless the GPU preference setting is disabled, and you're working on a slower computer that does not have enough processor power to display each adjustment in real time, there's no reason to ever turn this option off.

Reapply the Last Used Settings Holding down Option/Alt as you select an adjustment command from the menu, or as you apply its keyboard shortcut equivalent, displays the last used settings in the dialog.

Save Settings To save your settings for later use, click the Save button in the adjustment dialog. This can be useful for correcting images that share the same lighting conditions and colors, or that are shot in similar environments. For example, you could use saved settings to correct similar product shots featured in a catalog or advertisement layout.

Use the Hidden Reset Button As with most dialogs in Photoshop, holding down the Option/Alt key changes the Cancel button to Reset. Click the Reset button to restore the adjustment settings to what they were when you first launched the dialog.

Color Correction Tools

Photoshop contains two palettes that are essential to color correction: the Histogram palette and the Info palette. The information provided in these two palettes can be used hand in hand with the Curves and Levels dialog boxes to help guide your corrections.

Histogram Palette

The Histogram palette displays a simple bar graph called a histogram. It contains 256 bars (from 0 to 255—yes, zero counts in this instance) that vary in width and height to show the distribution of colors or tonal information in an image. Each bar represents one brightness value from black (on the far left) to white (on the far right). The height of each bar represents the number of pixels that correspond to that brightness value. The histogram palette helps you "see into" the image and locate where the darkest colors begin in each color channel and where the lightest colors end (see Figure 5.1).

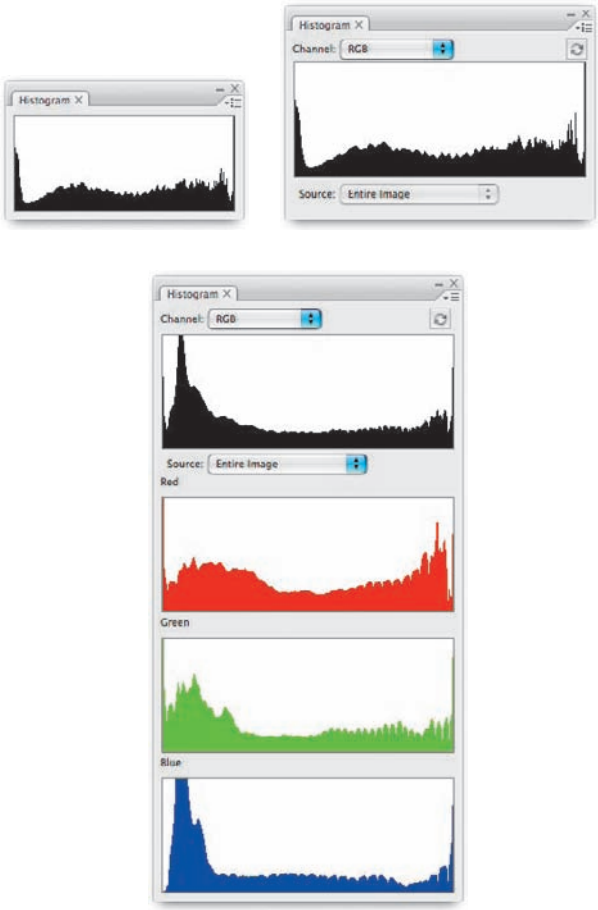


FIGURE 5.1
The Histogram palette can be displayed in Compact view (left), in the more accurate Expanded view (right), and in All Channels view with channels displayed in color (bottom).

The histogram can tell you things about your image at a glance (see Figure 5.2). For example, if your image contains clipped highlights, the bars will spike at the right end of the histogram. If it contains clipped shadows, the bars will spike at the left end. An image that contains a limited dynamic range will produce a histogram with a clump of bars in the middle and nothing at either end. If the histogram displays gaps between bars, it means that the image has already been edited and some data has been lost. A good histogram should fill the entire tonal range and contain smooth contours rather than obvious spikes.

The Histogram palette can help you monitor your adjustments—*especially* when working with Curves—so that you don't take them too far and wind up harming your image. The palette displays "before and after" information that can be very helpful (see Figure 5.3). As you start to adjust your image, the palette overlays a histogram representing the image's current state (black) with another histogram representing what the image looked like before you starting adjusting it (gray).

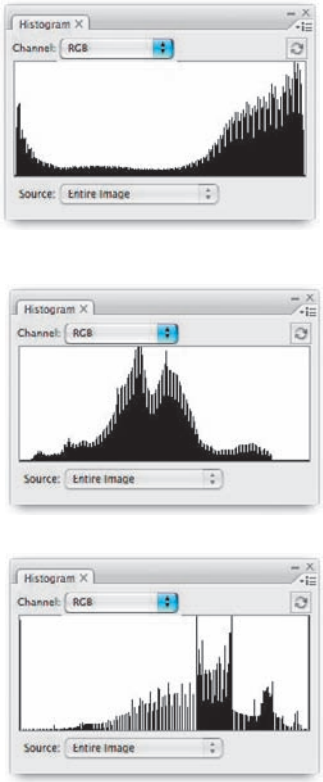


FIGURE 5.2
The spikes at either end indicate clipped shadows and highlights (top). The clump in the middle indicates a limited dynamic range (middle). The gaps between bars indicate that the image has already been adjusted (bottom).

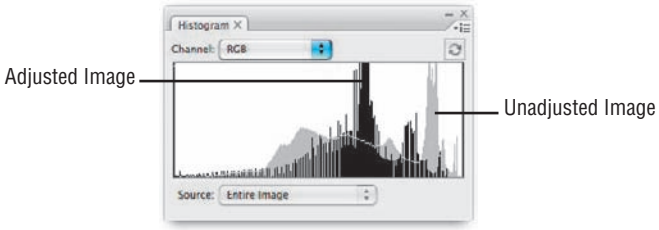


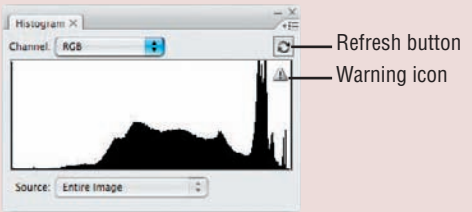
FIGURE 5.3
The gray histogram represents the unadjusted image; the black histogram represents the image after your adjustments have been made.

One thing to keep in mind when working with the Histogram palette is not to fixate on the histogram alone. There is no such thing as a perfect histogram, and often really good images can have "ugly" histograms. For example, some images are supposed to have pure white and pure black areas, such as a product shot placed over a pure white background, or an image captured at night. The histogram for these types of images should display a tall spike at either end, indicating that there is a lack of detail in the white or black areas—*which is perfectly fine.*

Remember—fixing the histogram does not always fix the image. The Histogram palette can provide information to help you make your adjustments. As you're using it, make sure to focus on the *image* and not worry so much about the "ugliness" of the histogram.

Remember to Refresh the Histogram

As you work on your image, the Histogram palette displays values based on the anti-aliased screen display of the image. Photoshop does this to preserve system performance, and these readings are not entirely accurate. To warn you of this, Photoshop displays a warning icon in the upper right of the palette. To update the histogram and ensure that you're getting accurate information, click the Refresh button.



Info Palette

The values displayed in the Info palette can be extremely helpful when making adjustments, especially when using Curves or Levels. Unlike the Histogram palette, which provides overall tonal information, the Info palette allows you to analyze specific points in an image.

If you move the cursor over a specific area of the photo, the Info palette displays the precise pixel values and exact location coordinates for that point in the image. If you make an adjustment, it also displays "before and after" information. The number on the left is the initial reading; the number on the right is the resulting value after making the adjustment (see Figure 5.4).

Figure 5.4
The number on the left is the initial reading; the number on the right is the resulting value after making the adjustment.

The Palette Options dialog box (accessible from the palette menu) allows you to set up exactly what information you'd like displayed. To compare conversion values for print graphics, you should display RGB values on one side of the palette and CMYK on the other. When working with the eyedroppers in Levels or Curves, you may want to set one side to Grayscale and one to RGB. Doing so can help you locate a neutral midpoint in the image. Be sure to choose 8-bit or 16-bit depending on the type of images you are editing. You can also change Info palette display settings from the pop-up menu by clicking any one of the small right-facing arrows located under the eyedropper and axis icons (see Figure 5.5).

The RGB and CMYK values displayed in the palette are calculated based on the Color Settings you've chosen in Preferences (for more on color settings, see the "Color Management: What Color Settings Should I Use?" section of Chapter 1, "Getting Started"). Being able to see CMYK values in the Info palette as you edit an RGB image allows you to monitor your color for print before making the final conversion to CMYK.

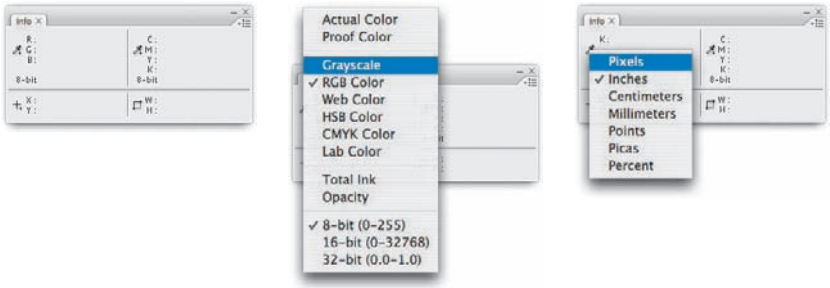


FIGURE 5.5
Click the small right-facing arrow under the eyedropper and axis icons (left) to access the pop-up menu and change display settings (middle and right).

ALWAYS CORRECT YOUR IMAGES IN RGB AND USE PROOF COLORS

The bulk of your color correction should be applied to images in RGB mode, before converting to CMYK for final output. To preview your adjustments in the chosen CMYK working color space, choose View ➢ Proof Setup ➢ Working CMYK, and then press ⌘/Ctrl+Y to Proof Colors in the image window. When applying the Proof Colors command, the title bar of the image window changes to display (RGB/CMYK), indicating that you are now viewing the image in the current working CMYK profile—without actually converting the image (). You can also choose View ➢ Gamut Warning (⌘/Ctrl+Shift+Y) to allow Photoshop to highlight any image areas containing colors that fall outside the gamut of the currently chosen working CMYK color space. You can choose a more apparent highlight color (as opposed to the default gray) in the Transparency and Gamut preferences panel (see Chapter 1). I recommend choosing a bright color that is less likely to appear in any of your print images, such as a lime green.

Tools to Avoid

Before we dive headfirst into what I consider to be the best tools for tonal correction, I'd first like to mention which tools you should avoid. It's not that I have anything personal against these tools (with the exception of maybe the legacy version of Brightness/Contrast)—they're just not the *best* tools to use for optimizing print graphics.

BRIGHTNESS/CONTRAST

With Photoshop CS3, we finally have an updated version of Brightness/Contrast. In the past, the Brightness/Contrast settings adjusted the overall image in equal amounts, resulting in blown-out highlights and washed-out shadows, or grayed highlights and plugged-up shadows. There was simply no reason to use this tool when you could get much better results by using Levels or Curves, both of which offer you much more tonal control.

Now by default, the new Brightness/Contrast dialog box behaves the same as the Brightness/Contrast controls located in the Camera Raw dialog box. This is a *huge* improvement, and a welcome change, but the Brightness/Contrast dialog still does not offer as much tonal control as either Levels or Curves.

What is really strange about this dialog is that it now includes a Use Legacy option (see Figure 5.6). When enabled, this feature makes the dialog behave as it did in previous versions of Photoshop—which is something you would *never* want to use, unless of course you are trying to make your image look really bad.

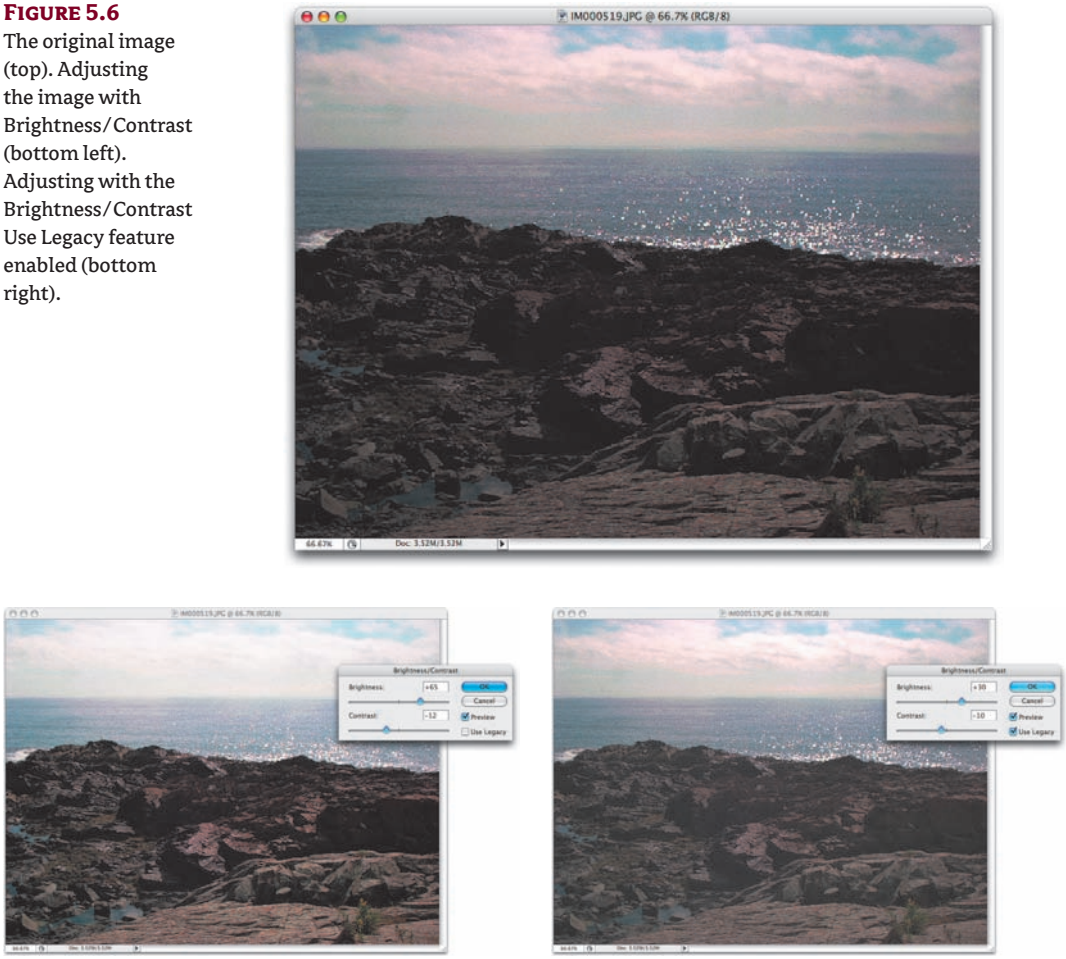


FIGURE 5.6
The original image (top). Adjusting the image with Brightness/Contrast (bottom left). Adjusting with the Brightness/Contrast Use Legacy feature enabled (bottom right).

EXPOSURE

The Exposure command is really meant for use with high dynamic range (HDR) images. It's great for editing images that contain 32 bits per channel, but for 8-bit or 16-bit images, it doesn't offer you anything that you couldn't do better by using Levels or Curves. In fact, by adjusting the dialog's Exposure and Offset sliders, you can pretty much get your image to look as bad as it would by working with the legacy version of Brightness/Contrast.

COLOR BALANCE AND VARIATIONS

The Color Balance and Variations dialog boxes allow you to shift the colors contained in the highlight, midtone, and shadow areas of your image toward one of the primary colors (CMY and RGB). Color Balance does offer you more control than the Variations command, which forces you to use preset adjustment increments; but like Variations, it shifts all the colors in your image toward the chosen primary color. More often than not, applying either command usually winds up adding an unwanted color cast to your image. Levels, Curves, Selective Color, and even Hue/Saturation are much better tools for "balancing color," which is generally a selective process rather than a global one.

Match Color

This isn't necessarily a bad tool, per se—it just doesn't really do what its name indicates, at least not from a print designer's perspective. Match Color is great for blending color temperature between two photos to create a dramatic effect. It is not a good tool for automated color correction, as its name might suggest. For example, let's say you are designing a product catalog that contains hundreds of similar products all photographed in the same environments and using the same lighting conditions. If you correct one image, you could use Match Color to match the rest of the images to the corrected one. However, it's just as easy to use adjustment layers to correct the initial image, and simply copy and paste them, or save the settings and load them into an adjustment layer for each image.

Levels and Curves

When it comes to color correction, Levels and Curves offer you the most control. Both commands allow you to make selective as well as global corrections by applying nonlinear adjustments. They are also both available as adjustment layers.

Unlike the legacy version of Brightness/Contrast, which applies linear transformations (adjusting the overall image in equal amounts), Levels and Curves allow you to adjust values in the middle of the tonal range without losing information at the ends. This nonlinear adjustment method allows you to preserve highlight and shadow detail as you improve your images.

Of the two commands, Levels is easier to master, but Curves is more powerful. Keep in mind that everything you can do with Levels can also be done with Curves, but working with Curves requires more skill and effort. Curves is the tool to use for detailed tonal corrections, whereas Levels is best suited for quick global corrections, such as lightening the midtones or increasing overall image and contrast.

Levels

The Levels command allows you to identify shadow and highlight points by using the dialog's built-in histogram. The Input and Output sliders allow you to limit highlight and shadow percentages, and the Input Gamma slider allows you to adjust midtones in an image quickly and easily. The sliders also provide real-time feedback when the Preview option is enabled (see Figure 5.7).

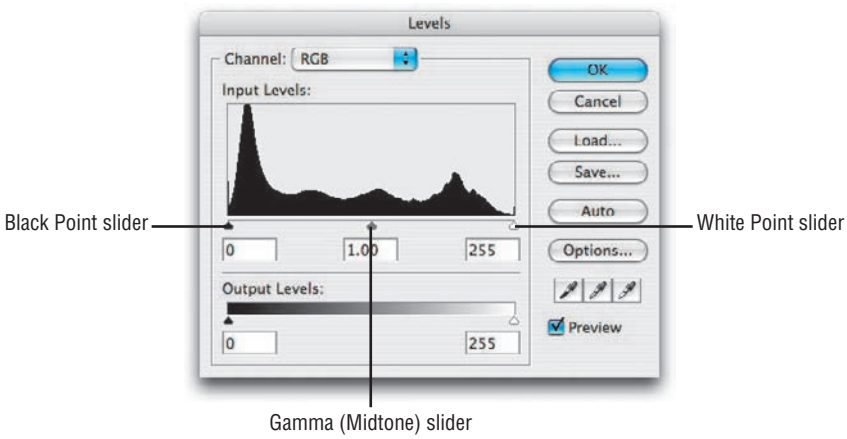


FIGURE 5.7
The Levels dialog box

As you move the Input and Output level sliders, the values in the corresponding fields change. If you prefer, you can enter values in these fields, but moving the sliders is usually the quickest and easiest way to make an adjustment, especially with the real-time Preview option enabled.

Input Levels

Moving the Black and White input level sliders in toward the center of the histogram effectively stretches the range of the image. By moving the Black Point slider from its default position (zero) to the right, you are telling Photoshop to make all pixels from the new position and lower (those to the left) black. The same rule applies when moving the White Point slider from its default position (255) to the left. All pixels from the new position and higher (to the right of the slider) become white.

Images that are lacking in contrast do not fill the entire tonal range of the histogram. But if you move the Black and White Point sliders in toward the center until they line up directly underneath the left and right ends of the histogram, you can stretch the dynamic range of the image, thereby increasing contrast and saturation (see Figure 5.8).

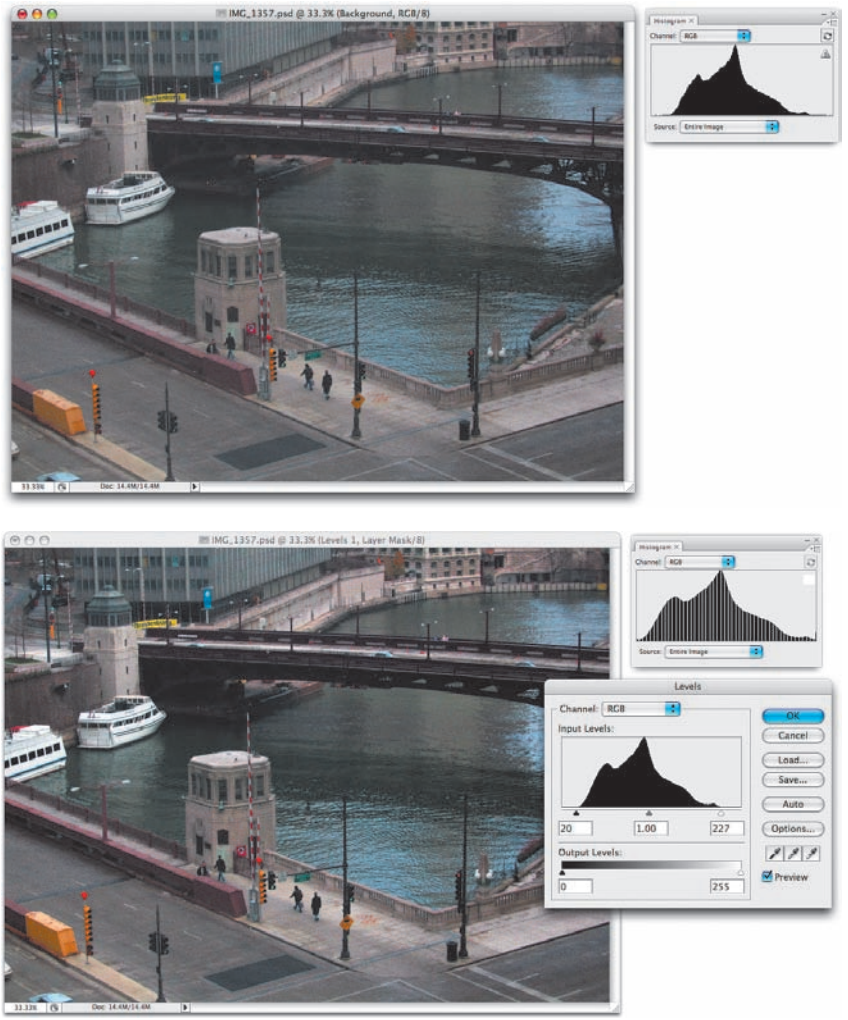
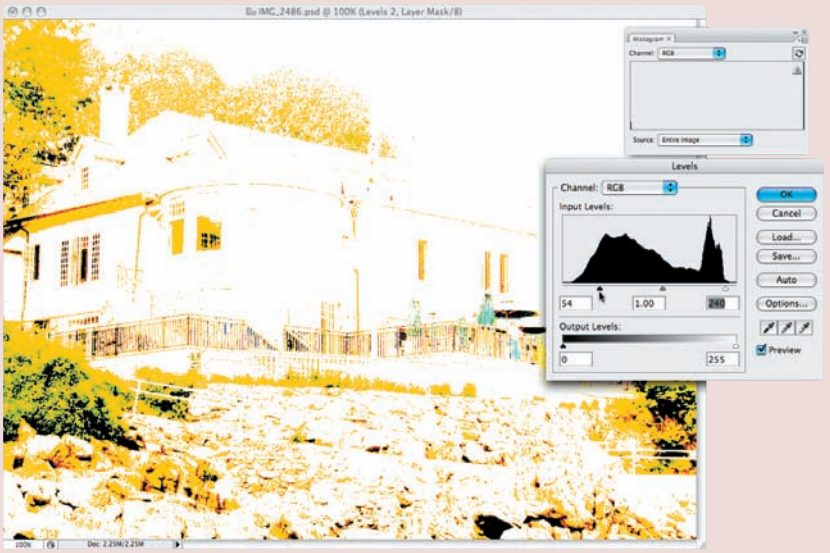


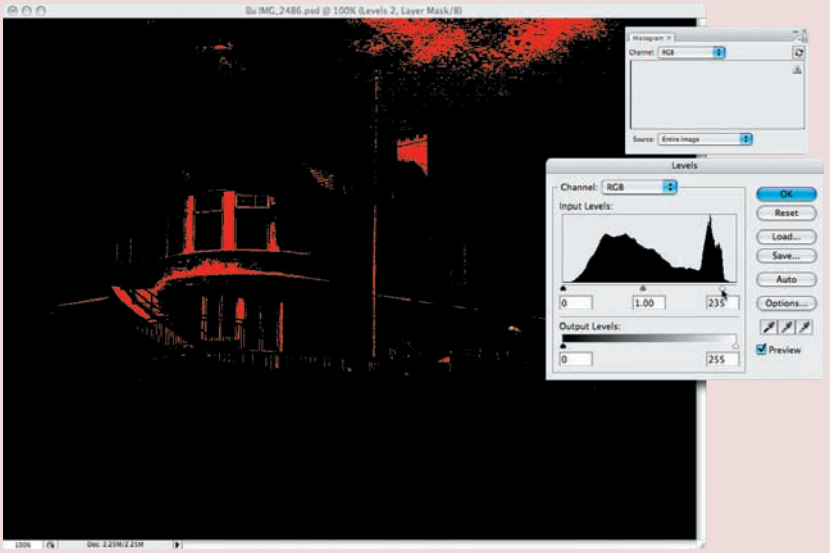
Figure 5.8
The original image is flat and lacking in contrast (top). Moving the Black and White Point sliders in toward the center extends the dynamic range and increases contrast (bottom).

Show Clipping with Levels

By holding down Option/Alt as you click and drag the Input Black and White Point sliders, the histogram changes to display any black or white areas that are getting *clipped* (changed to pure black or pure white). You can use this along with the Preview option to determine whether you've taken the adjustment too far and pushed too many areas of the image into pure black or pure white. This can be especially helpful when adjusting black-and-white images.



Black point clipping



White point clipping

The Gamma, or gray, slider allows you to lighten or darken the midtones in the image. The slider's default position is at the 50% gray point (level 128). Moving it to the left lightens the midtones; moving it to the right darkens them (see Figure 5.9).

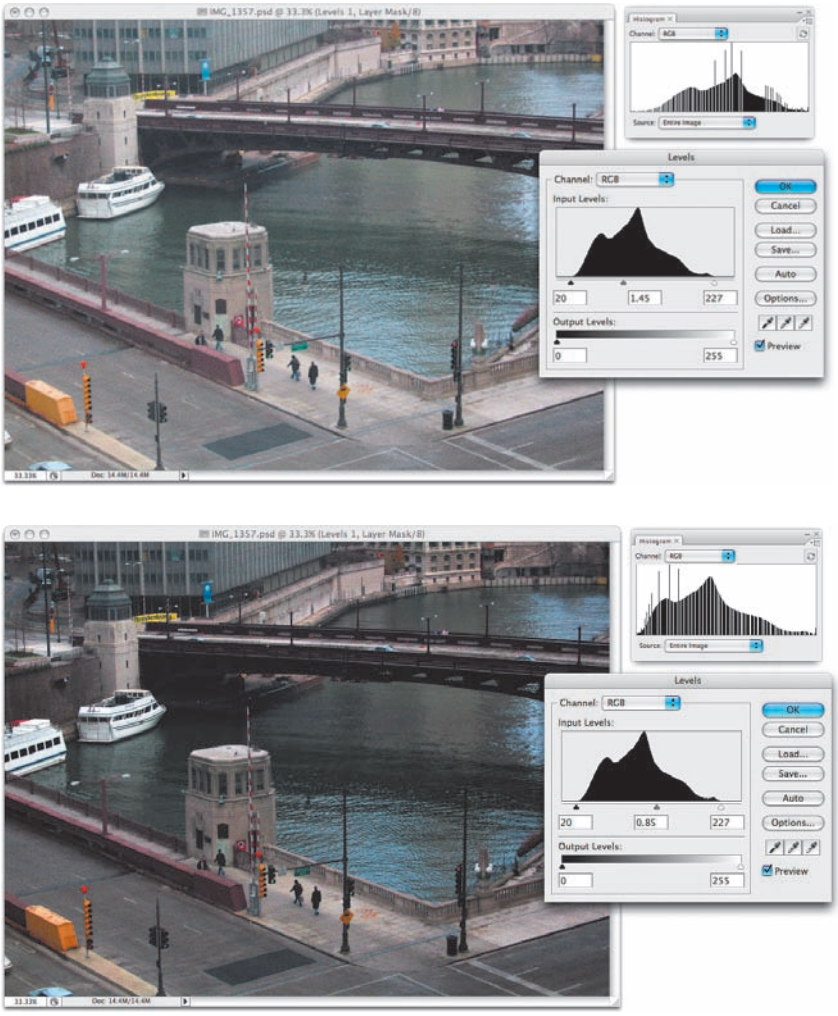


FIGURE 5.9
Moving the Gamma (or gray) slider, to the left lightens the midtones in the image (top). Moving it to the right darkens them (bottom).

Output Levels

Adjusting the Black and White output level sliders compresses the image rather than squeezes it. By moving the Black output slider to the right from its default position of zero, you are limiting the darkest pixels in the image and compressing the overall tonal range. The White output slider behaves in much the same way. By moving it to the left from its default position of 255, you are limiting the lightest pixels in the image. Unless you're using extremely outdated printing methods, there's no real reason to move these sliders from their default positions.

Levels and Color

When editing color images with Levels, you have the option of adjusting the composite channel (all colors) or individual channels. More often than not, you'll be making a Levels adjustment to the composite channel (RGB, CMYK, or Lab). When you do, Photoshop applies the adjustment equally to all color channels in the image.

On the right side of the Levels dialog box are three eyedroppers. The left eyedropper is for setting the black point, the middle for setting the neutral midpoint, and the right for setting the white point in the image. You can use these eyedroppers, along with the Levels dialog histogram, to color-correct an image with just a couple of clicks. They are especially helpful when attempting to remove a color cast.

For many images, selecting the black and white point eyedroppers in the dialog and clicking in the image window can stretch the tonal range and help balance the image's color—without even having to set a midpoint with the middle eyedropper. However, before clicking in the image, it helps to first identify the darkest and lightest areas.

To identify a black, white, and gray point in the image, first change your Info palette to display grayscale values. Hover over the image and refer to the palette to find the approximate darkest and lightest areas. Proceed to click in these areas with the respective eyedroppers (see Figure 5.10).

Curves

Without a doubt, Curves is the most powerful tool in Photoshop. You can do more with Curves than with any other tool in the application. Granted, it may take you a while to get used to the dialog box, but after you do, you'll never want to use anything else to correct your images. In this section, you'll take a look at how you can use Curves to do the following:

- Lighten or darken specific areas of an image—*without* having to make selections first
- Improve color and contrast with just a few clicks
- Bring out more image detail than you ever thought possible

The Curves Dialog Box

By now you should know that 8-bit images contain a total of 256 shades of gray. The Curves dialog box allows you to adjust each shade of gray independently—something you cannot do with Levels or any other adjustment tool in Photoshop.

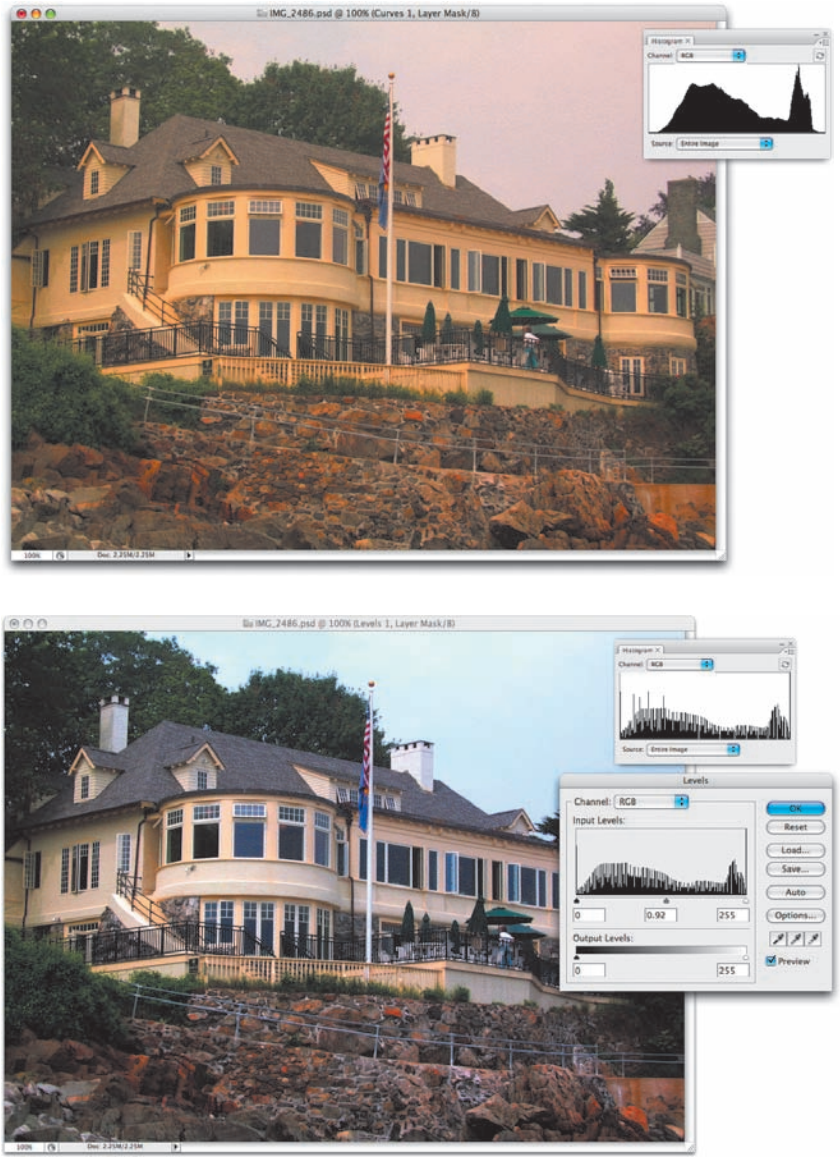


FIGURE 5.10
The original image contains a yellow color cast (top). Clicking in the darkest and lightest areas with the respective eyedroppers drops the color cast and helps balance the image's overall color (bottom).

The grid that you see when you open the dialog is actually a chart that shows how much ink or light will be used in your image. The bottom gradient represents all 256 shades of gray in the image. The gradient on the left indicates how dark an area will become if a point on the curve is moved to a specific height (see Figure 5.11).

The diagonal line between the two gradients represents each shade of gray from 0 to 255 (from white to black)—and here's the best part—it's *interactive*. This means that you can create multiple points on the line (16 total) and move them up or down to make that specific area of the image darker or lighter (see Figure 5.12).

FIGURE 5.11
The bottom gradient represents what you're changing. The gradient on the left represents the adjustment you are making (darker or lighter).

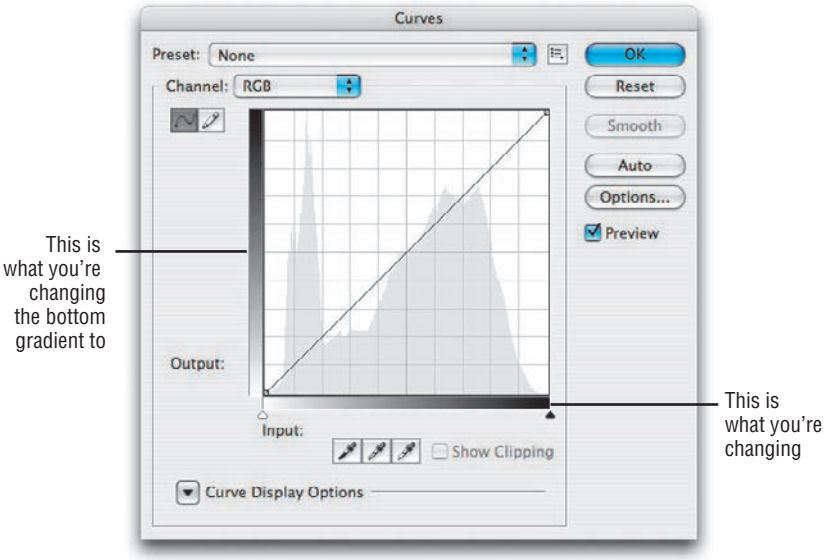
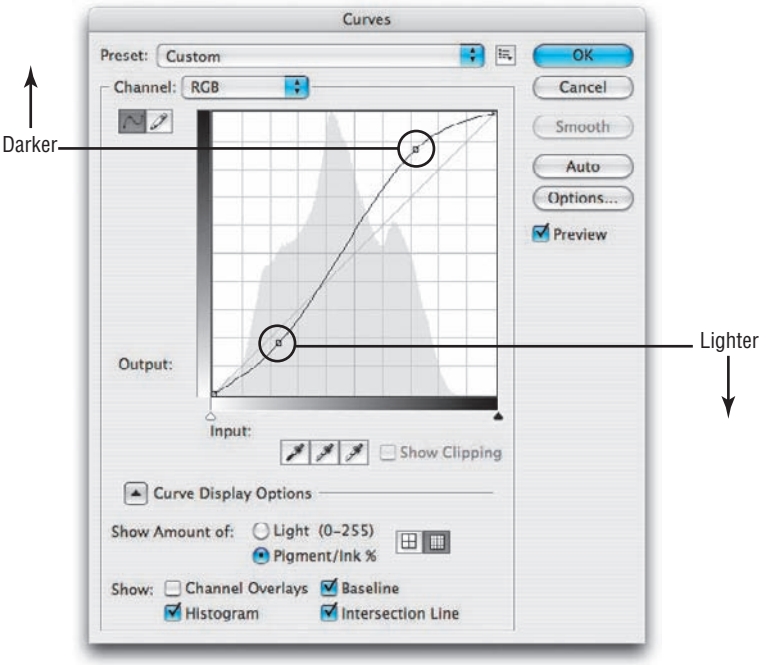


FIGURE 5.12
The points on the left side of the curve make those specific areas in the image lighter; the points on the right make them darker.



The Curves dialog now also contains several new display options. At the bottom of the dialog, click the down-facing arrow to reveal these settings:

Show Amount Of As a print designer, I always choose Pigment/Ink % over Light (0–255). When I am editing images for print, I like to think in terms of ink rather than light. After all, I'm designing for print output, not screen display. The darker I make a portion of the image, the more ink will be used in that area when it is printed. Choosing this option makes the gradient bars flip the opposite way so that black is up and to the right (Figure 5.13). If you choose to use Curves in percentages as I do, always remind yourself that "up means darker" and "down means lighter." Make that your Curves mantra.

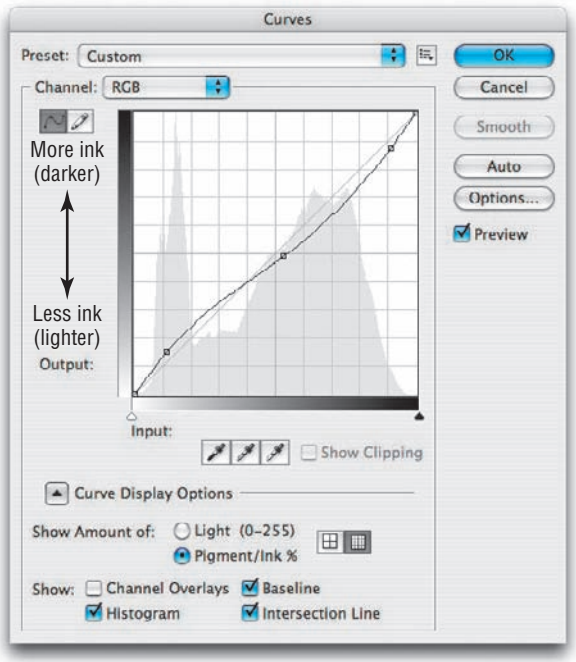


FIGURE 5.13
Toggling the Show Amount Of setting to Pigment/Ink %

Grid Options The buttons to the right allow you to choose how you'd like the grid displayed: in simple or detailed view. The default simple option displays the grid in quarter tone (25%) increments, whereas the more accurate detailed view uses 10% increments (Figure 5.14). I like to be as accurate as possible, so I usually keep this set to detailed view.

Channel Overlays Enabling this option displays a separate colored curve for each color channel that has been edited with Curves while you are currently editing the composite curve (Figure 5.15). If you haven't made any Curves adjustments to the individual channels, then there is no need to enable this option. However, if you have applied adjustments to the individual channels, enabling this option allows you to compare them to the adjustments made to the composite curve.

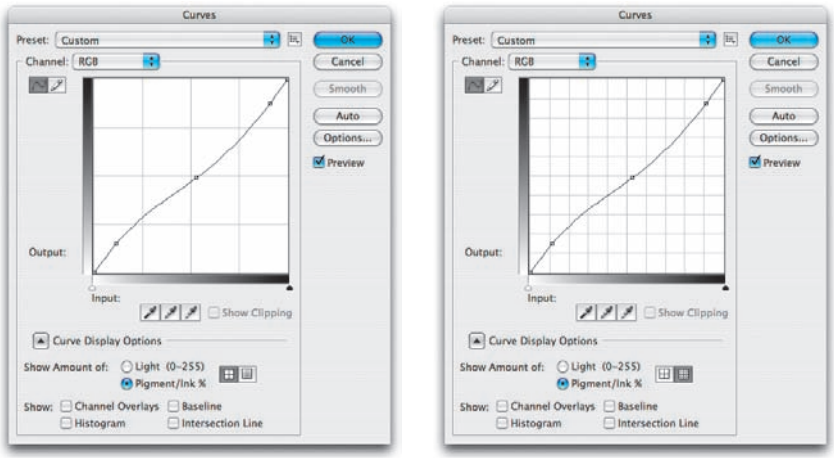


FIGURE 5.14
Click a Grid Option button to change the gridlines from 25% increments to 10%.

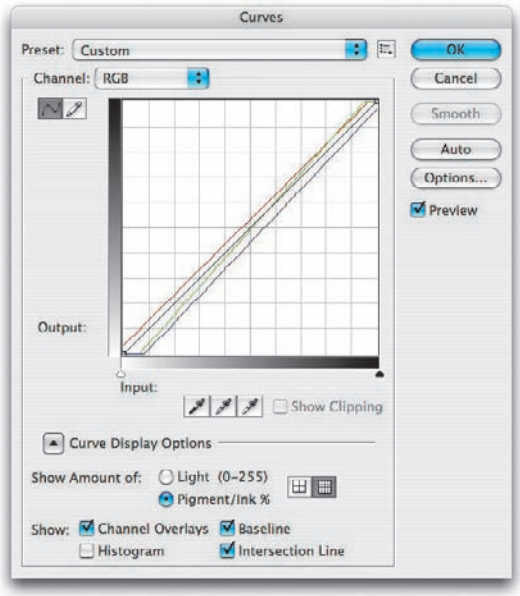


FIGURE 5.15
With Channel Overlays displayed

Histogram If you enable this option, Photoshop displays the image's histogram in gray behind the curve and the grid (Figure 5.16). Although it's helpful to be able to refer to the histogram right in the Curves dialog, I find it annoying that—unlike the histogram in the Histogram palette—the Curves histogram does not update itself. I usually show the histogram in the Curves palette, but continue to refer to the Histogram palette in the background so I can see how each one of my adjustments is affecting my image.

Baseline With this option enabled, you can display the original diagonal line in gray behind the curve (Figure 5.17). This allows you to compare your curve adjustments to the original line that indicates no change, and determine how much of an adjustment you've made. It's definitely a good idea to keep this option turned on at all times.

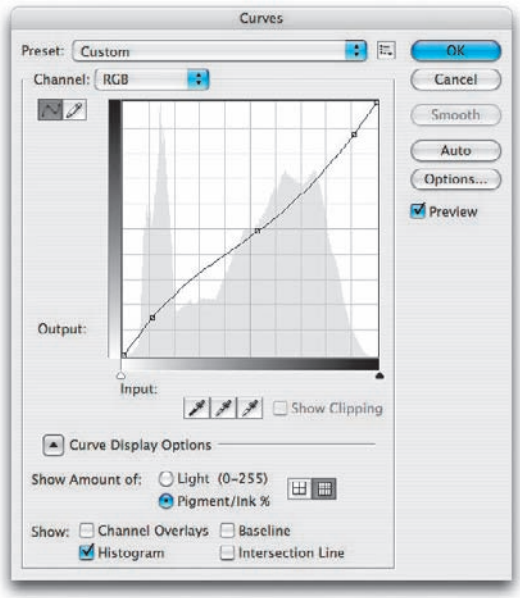


FIGURE 5.16
The Curves histogram

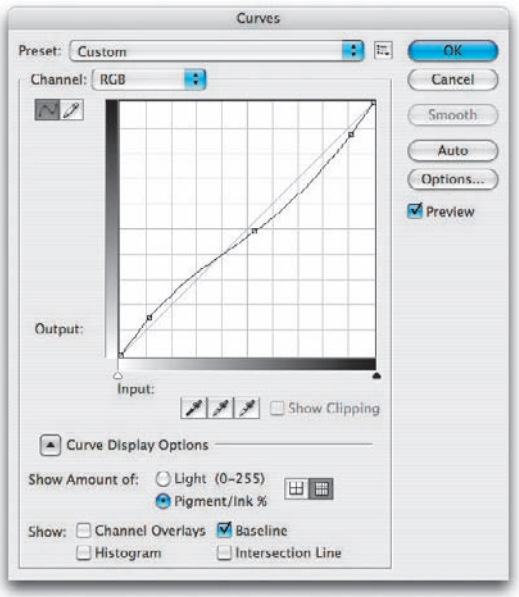


FIGURE 5.17
Displaying the baseline

Intersection Line Enable this option to display an intersection line over the grid as you move a selected point on the curve (Figure 5.18). This can help you make more-precise movements, especially when the grid is set to detailed display.

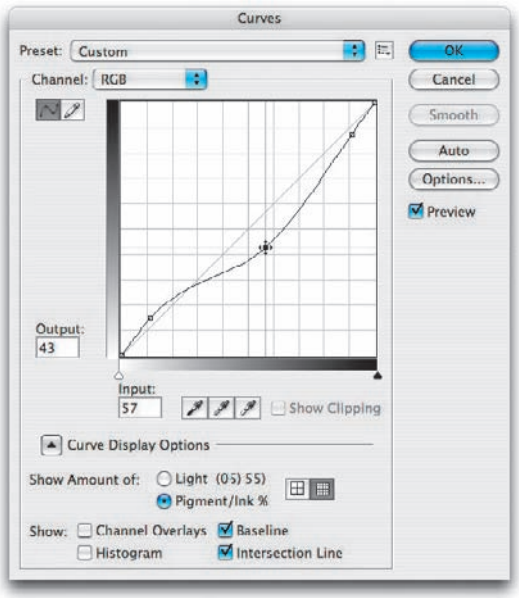


FIGURE 5.18
Moving a point with the intersection line visible

BRINGING OUT THE DETAIL

There is no better tool than Curves to bring out hidden detail in an image. By adding points along the curve in the areas you'd like to enhance, you can adjust the curve's angle and bring out the hidden detail, and this can all be done without having to make any detailed selections beforehand. Let's try it.

Open any image that lacks contrast and may be hiding some detail. Then choose Image ➢ Adjustments ➢ Curves, or add a Curves adjustment layer. With the Curves dialog open, move the cursor over the area that you'd like to enhance in the photo. As you hover the cursor over the image and click, Photoshop displays a circle along the diagonal line that represents the corresponding gray value for that area in the image (see Figure 5.19). Add a control point at either end of this area of the curve by ⌘/Ctrl+clicking.

FIGURE 5.19
As you hover the cursor over the image, Photoshop displays a circle along the diagonal line that represents the corresponding gray value for that area in the image.

After you've added these two new points to the curve, select the topmost point and move it upward by using the up arrow key. Press Control/Ctrl+Tab to toggle to the lower point, and move it downward by using the down arrow key. Using the arrow keys instead of moving points with the mouse allows you to be more precise when making your adjustments. It also makes it easier to reposition a point if you've taken an adjustment too far. To move each point in larger increments, hold down Shift as you press the up or down arrow keys.

Preview the area in the image window to determine how steep to make the curve. The steeper the angle, the more contrast that is added, and the more detail that is revealed (see Figure 5.20).

If the other areas in the image are changing drastically as a result of your Curves adjustment, add another point and straighten out the rest of the curve to match the original diagonal baseline.

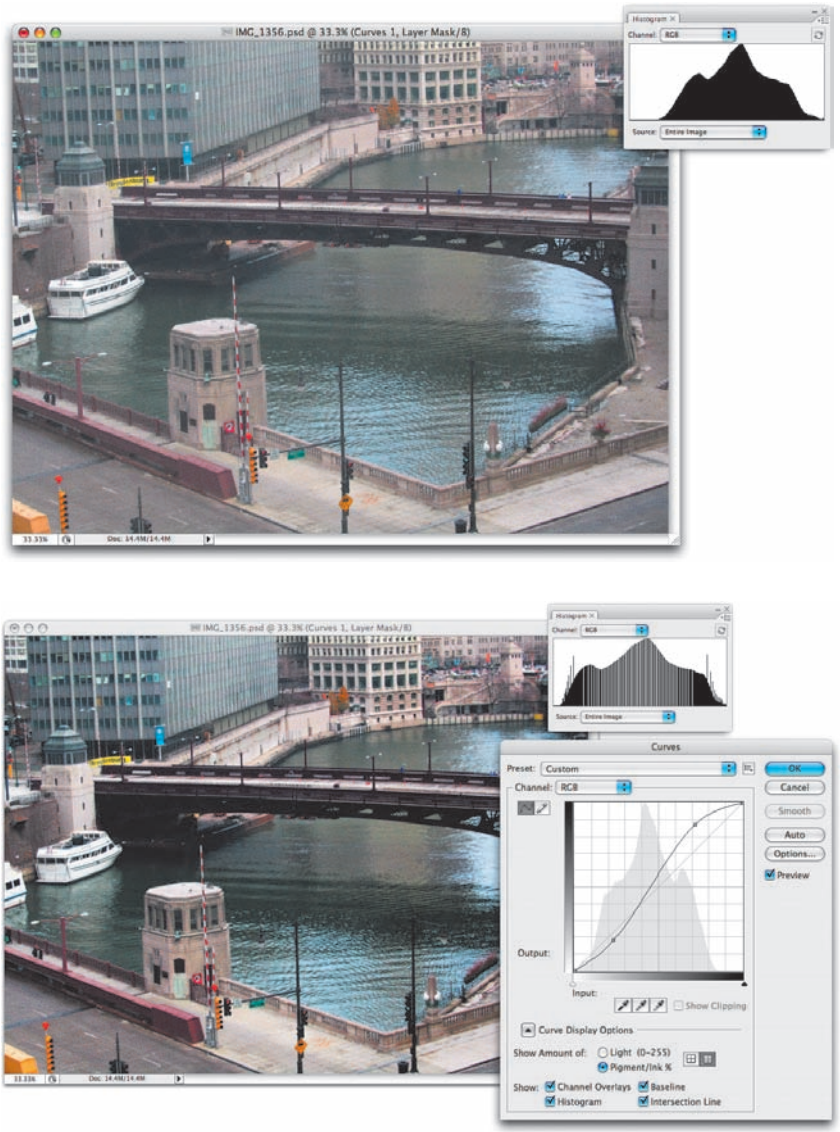


FIGURE 5.20
The original image (top). The adjusted image (bottom).

Using Gray to Correct Color

The Curves dialog also contains a series of eyedroppers that behave exactly the same as the eyedroppers located in the Levels dialog. You can use these eyedroppers along with the Info palette to color-correct an image with just a few clicks.

To identify a black, white, and gray point in the image, first change your Info palette to display grayscale values. Hover over the image and refer to the palette to find the approximate darkest and lightest areas (see Figure 5.21).

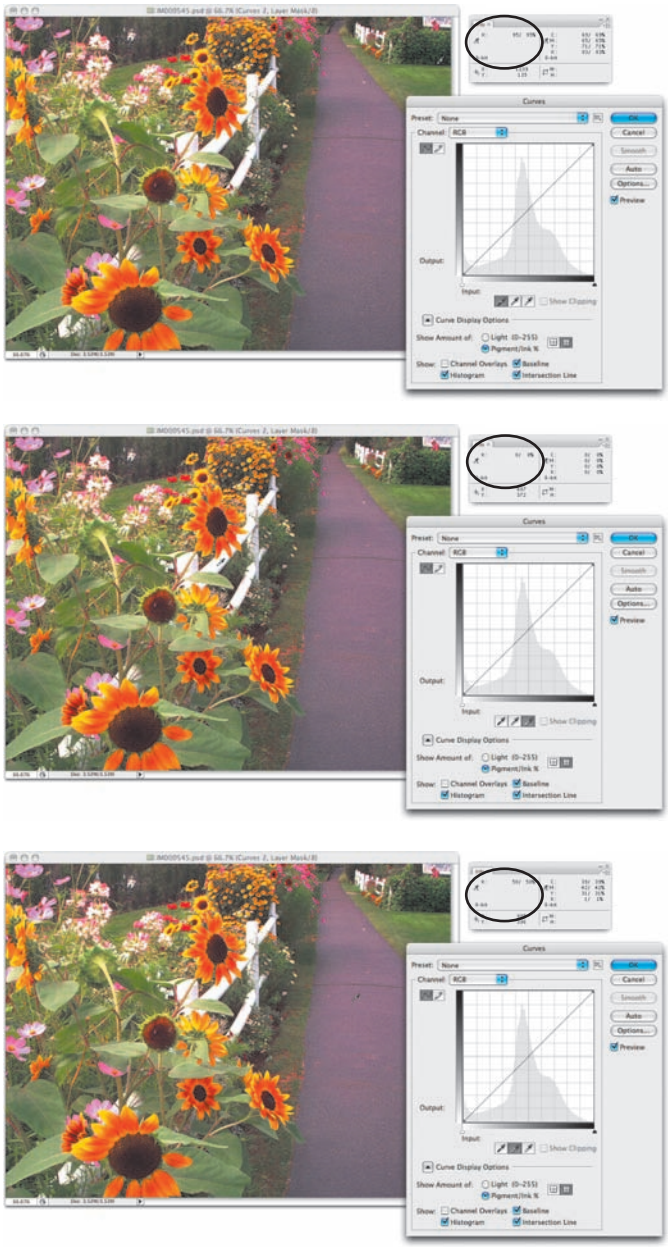
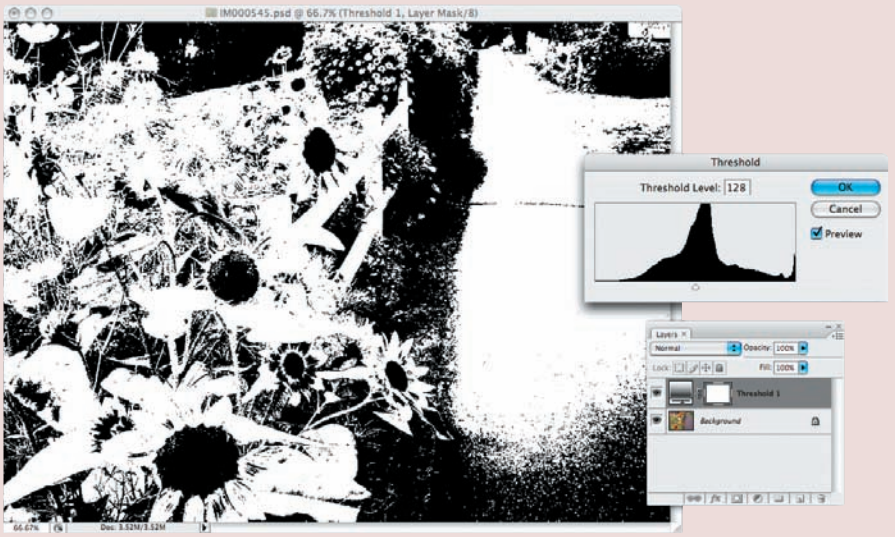


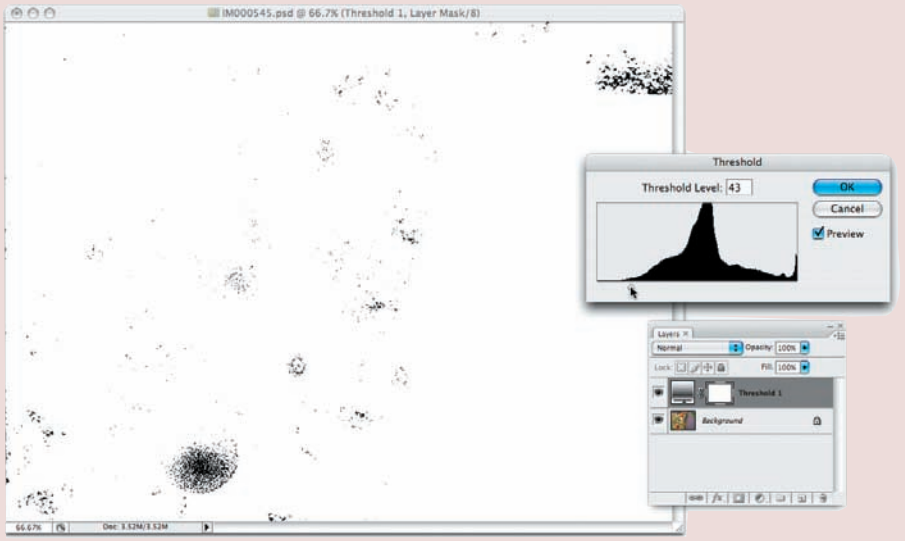
Figure 5.21
You can use the Info palette to locate the darkest point in the image (top), the lightest point (middle), and a 50% gray point (bottom).

Threshold Adjustment Layers

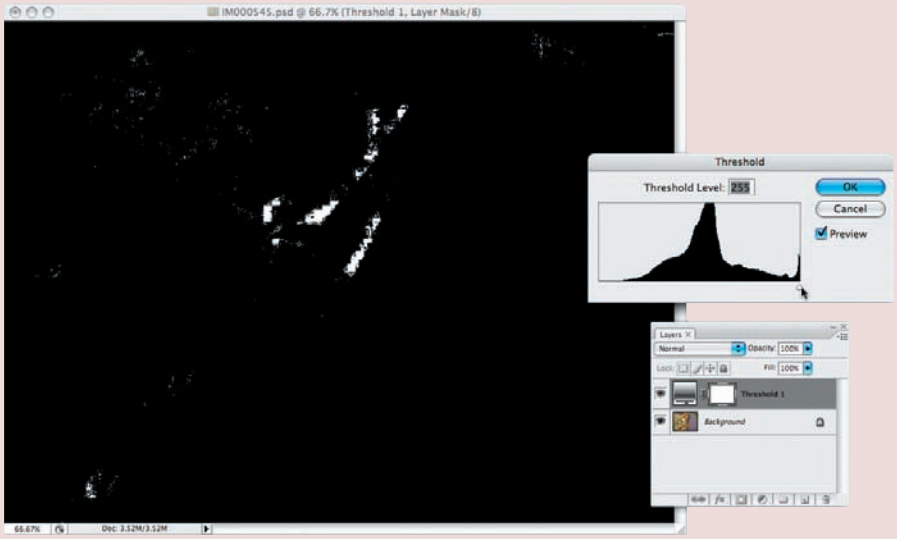
The Threshold adjustment layer allows you to create a high-contrast, black-and-white representation of an image. When you add a Threshold adjustment layer, Photoshop automatically displays the Threshold dialog box. By default the initial Threshold setting is 128, or neutral gray. By moving the slider that is under the histogram all the way to the left, you can locate the darkest areas of the photo. By moving it all the way to the right, you can locate the lightest areas.



The default Threshold setting of 128



Locating the darkest area



Locating the lightest area

Locating the darkest/lightest areas of a photo by using this method can assist you in creating a Levels adjustment layer. Now that you've located these areas, you can turn off visibility for the Threshold layers and set the black/white point with the eyedroppers in the Levels dialog. Doing so helps bring out the detail in oversaturated areas. You can gain even more control over which areas are affected by the Levels adjustment by painting in the layer mask with a soft brush (for more on masking and brushes, see Chapter 7, "Combining Image Layers").

Where you click with the black point and white point eyedroppers determines the darkest and lightest areas of the photo and expands or limits the image's overall dynamic range. You can increase contrast by clicking in the areas that you would like to push into the darkest or lightest values. Finally, clicking on a neutral gray point balances the image's color (see Figure 5.22).

After the black, white, and gray points are set with the eyedroppers, you can then bring out detail in the image (if necessary) by using the curve adjustment method described in the previous section (see Figure 5.23).

Correcting a Dark Image

The Curves dialog also gives you an incredible amount of tonal control. By simply adding and adjusting points along the curve, you can improve a dark, backlit image with amazing precision—*without* having to make any selections.

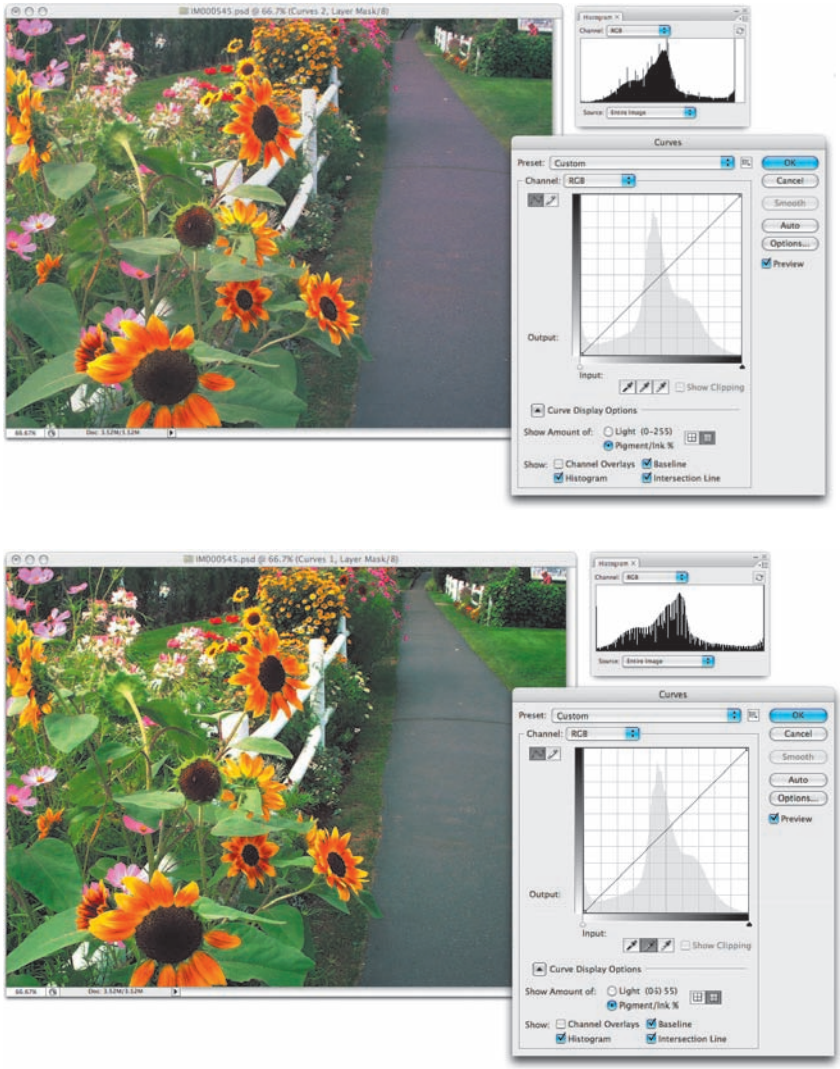


FIGURE 5.22
Setting the black and white points with the eyedroppers expands or limits the photo's dynamic range (top). Setting a neutral midpoint with the gray eyedropper balances the image's color.

Open any dark or backlit image and choose Image ➢ Adjustments ➢ Curves, or add a Curves adjustment layer. With the Curves dialog open, move the cursor over the area that you'd like to lighten in the photo. As you drag the cursor over the image, Photoshop displays a circle along the diagonal line that represents the corresponding gray value for that area in the image. Add a control point to this area of the curve by ⌘/Ctrl+clicking. Then use the down arrow key to move the point and lighten that area of the image. (Remember your curves mantra: Down means lighter or less ink). Preview the area in the image window to determine how far to lower the point on the curve (see Figure 5.24).

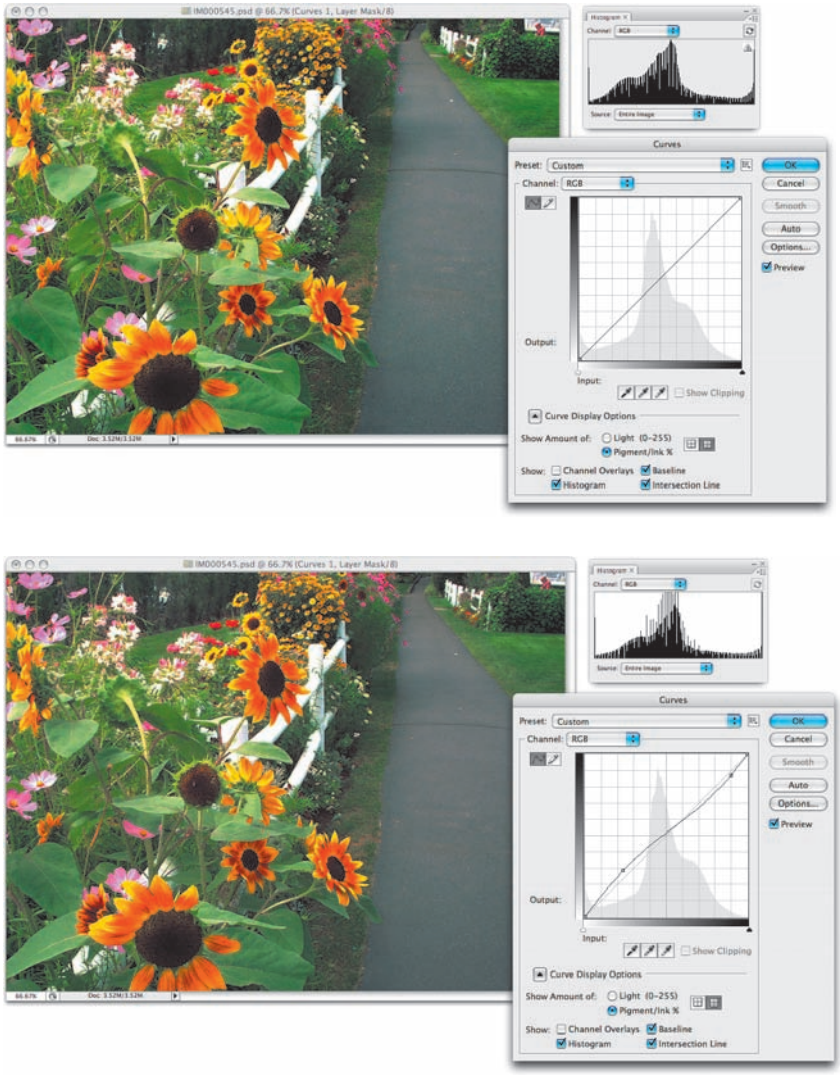


FIGURE 5.23
The color-corrected image (top). Adjusting the curve to enhance detail in the corrected image (bottom).

The Black and White Point sliders located underneath the grid can be adjusted by clicking and dragging. You can use these sliders just as you would when working with the Black and White sliders in the Levels dialog. Doing so repositions the black and white points located at each end of the curve, and alters the overall dynamic range of the image.

FIGURE 5.24
The original image (left). Locate and add a point along the curve in a dark area of the image. Lower the point on the curve to lighten that area (right).

Continue to add and move points along the curve for any image areas that need to be lightened. If necessary, points can be removed by simply dragging them off the curve. If the other areas in the image are changing drastically as a result of your Curves adjustment, add another point and straighten out the rest of the curve to match the original diagonal baseline. Sometimes your final curve adjustment can be pretty extreme, as in the example shown in Figure 5.25.

FIGURE 5.25
The original image (left). The adjusted image (right).

CURVES AND CHANNELS

For images that require much more precise color correction, the Curves dialog also allows you to apply adjustments on a per channel basis. This type of adjustment is commonly used to color-correct skin tone after converting the image to CMYK mode, as described in the following example.

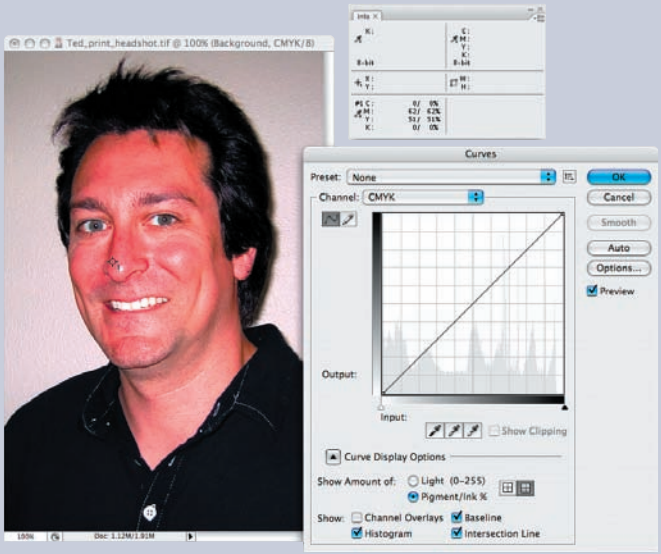
Real World Scenario

Adjusting Skin Tones for Press

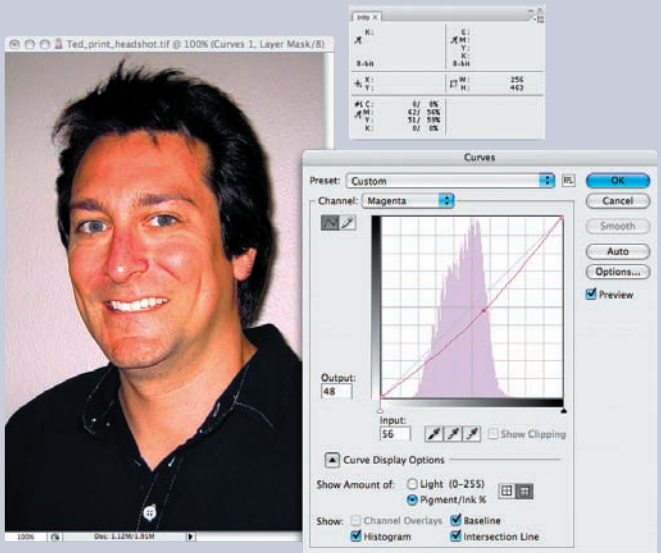
Nine times out of ten, lighter skin tones wind up getting sunburned on press (printing too red), even if they appear correct on a calibrated monitor. By applying a Curves adjustment to the Magenta and Yellow channels of a CMYK image, you can ensure that your skin tones will output properly every time.

In general, lighter skin tones should contain 3% to 5% more yellow than magenta. Open a CMYK image (I've included my own headshot on the companion CD so you can follow along here). Make a Color Range selection of the skin tone areas of the photo (for a refresher on making Color Range selections, see Chapter 4, "Working with Color"). Press ⌘/Ctrl+H to hide the selection so you can preview your adjustment without the marching ants getting in the way.

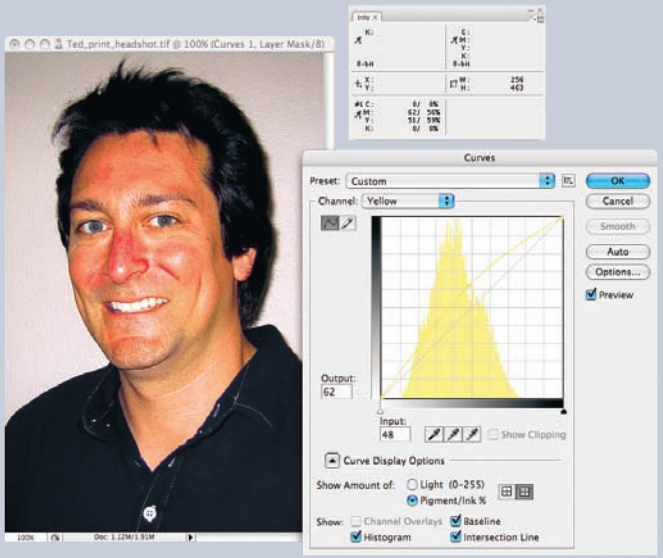
Press ⌘/Ctrl+M to access the Curves dialog. Hover the cursor over an area of skin that contains a medium brightness (50% Grayscale in the Info palette). Shift+click to temporarily access the Color Sampler tool and add a target in that area of the skin. Refer to the #1CMYK reading that is added to the Info palette in order to determine the amount of yellow and magenta in that area of the image (Note: The Color Samplers option must be enabled in the Info palette menu in order to view this information). If the magenta value is much higher than yellow, you definitely need to make an adjustment or run the risk of the image potentially printing too red.



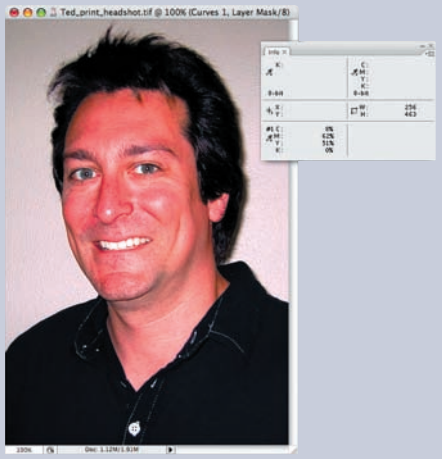
Hold down Shift+⌘/Ctrl and click in the target where you got the original Info palette reading. This adds a point along the curve for every channel. Choose Magenta from the Curves dialog Channel menu and you will see the point. Reduce the Output value by at least half the difference of the magenta and yellow readings. For example, if the difference between magenta and yellow is 10%, reduce the magenta output value by at least 5%. In this example, I reduced the magenta output value by 8%, so that the skin tone would not become too yellow.



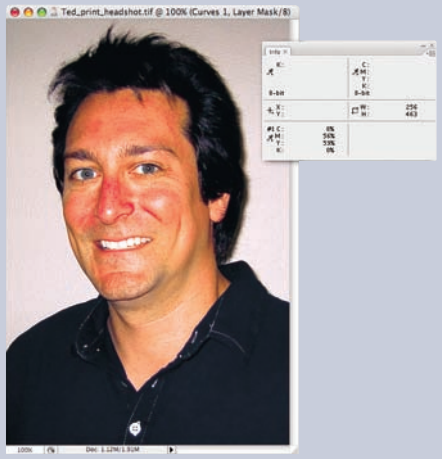
Now choose Yellow from the Channel menu, and this time increase the Output value as much as you need to in order to make the yellow value at least 3% higher than magenta (14% in this example).



Refer to the Info palette to make sure the #1CMYK before and after values reflect 3% to 5% more yellow than magenta. If they do, the skin tones in your image will not appear too red when printed on a printing press. Click OK to apply the adjustment and press ⌘/Ctrl+D to deselect.



Before



After

Auto Color Correction

Photoshop contains several commands for applying automated color adjustments, including Auto Levels, Auto Contrast, and Auto Color. Of the three commands, Auto Color is the most useful for print designers. When you choose Image ➢ Adjustments ➢ Auto Color, Photoshop uses the default options for automated color correction, and simply applies the adjustment—without displaying any dialog boxes or asking you to enter any settings. The results can sometimes be good enough to use in a layout, but they're usually just a good starting point for making further adjustments. However, by tweaking the settings in the Auto Color Correction Options dialog box, you can get much better results from the Auto Color command and ultimately save production time. Here's how it's done:

Open an RGB image that needs correcting and press ⌘/Ctrl+M to display the Curves dialog box. You'll notice an Auto button located at the right of the dialog, and underneath it is an Options button. Click the Options button (see Figure 5.26) to display the Auto Color Correction Options dialog.

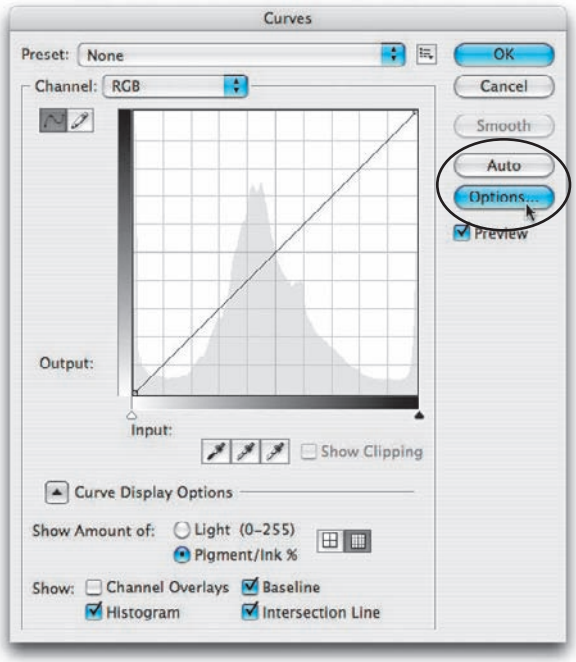


FIGURE 5.26
Click the Options button to display the Auto Color Correction Options dialog box.

CMYK vs. RGB

Major color correction adjustments should be applied to your images in RGB mode before converting them to CMYK. To ensure that your colors are going to output properly as you color-correct, choose View ➢ Proof Colors ➢ Working CMYK. This allows you to preview the image in the window by using the currently chosen working CMYK profile.

Always keep a safe copy of your original working RGB image and apply the final CMYK conversion to a duplicate. The final CMYK image is what you should place in your layout document. If necessary, final tweaks can be made to CMYK images before sending them off to press (for more on color settings, see the "Color Management: What Color Settings Should I Use?" section of Chapter 1).

The Algorithms options at the top of the Auto Color Correction Options dialog tell Photoshop how to correct the image when the Auto Color command is applied. With the Enhance Monochromatic Contrast setting enabled, Photoshop applies an adjustment similar to the Auto Levels command, which is usually not balanced enough for most images. The default Enhance Per Channel Contrast setting does a fairly good job, but again is usually not balanced enough for print images. The bottom setting, Find Dark & Light Colors, is the one you want to use, along with the Snap Neutral Midtones option underneath (see Figure 5.27).

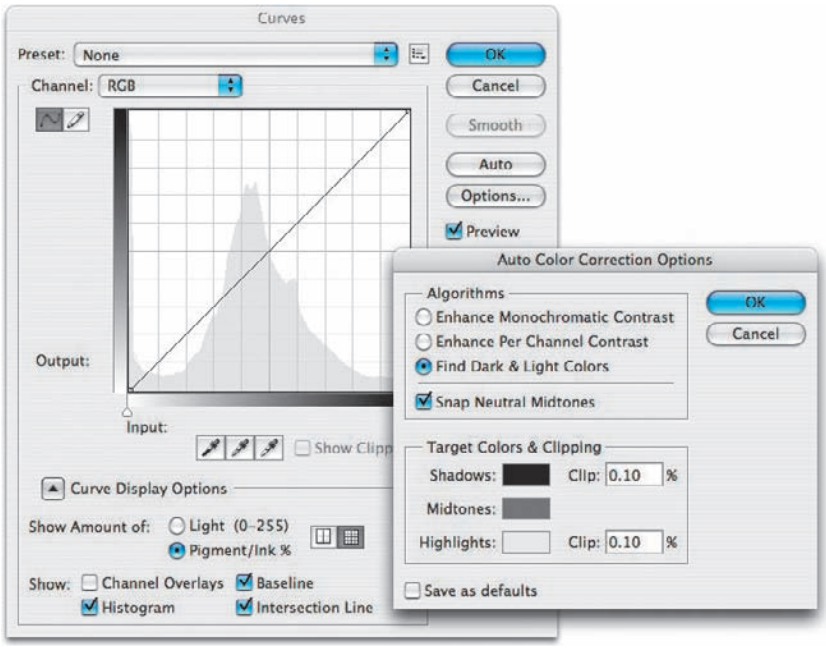


FIGURE 5.27
Choose Find Dark & Light Colors and enable the Snap Neutral Midtones option.

By choosing the Find Dark & Light Colors algorithm and enabling the Snap Neutral Midtones option, you are telling Photoshop to color-correct the image by using the same method as if you were using the Black Point, White Point, and Gray Point eyedroppers in the Curves dialog (see "Using Gray to Correct Color" in the Curves section of this chapter). Find Dark & Light Colors determines the overall dynamic range by setting the black and white points in the image. Snap Neutral Midtones sets your gray point and helps balance the overall color.

At the bottom of the dialog is a section called Target Colors & Clipping. Here is where you can set limits to the dynamic range that Auto Color uses to correct with. If the bulk of your images require it, you can lighten the shadow target value and darken the highlight value just a slight bit, in order to limit the dynamic range that's being corrected. If you find that you are losing detail in shadow and highlight areas when applying Auto Color, decrease the Black Clip and White Clip settings.

If you'd like to save these settings and use them with all of your images, click the Save As Defaults option at the bottom of the options dialog. Doing so tells Photoshop to remember these settings even after you close the dialog or restart the application (see Figure 5.28).

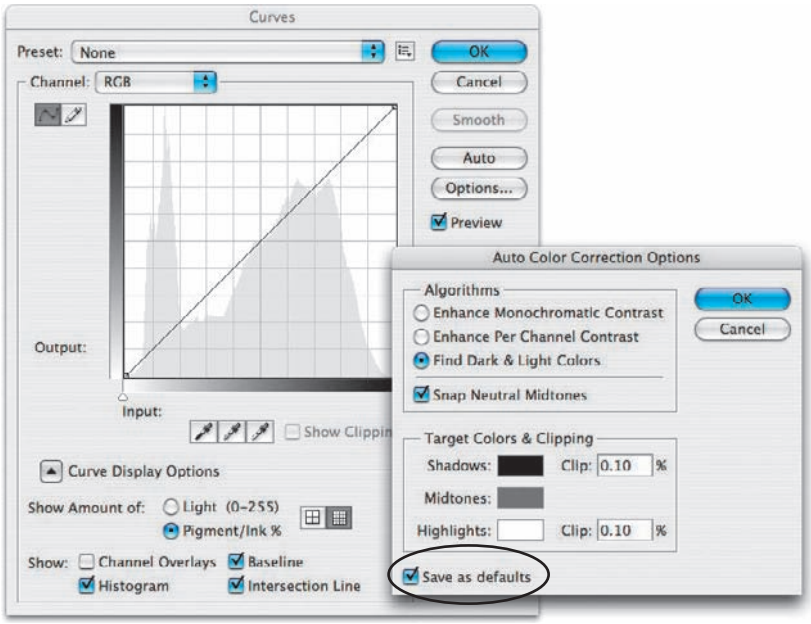


FIGURE 5.28
Enabling the Save As Defaults option allows Photoshop to remember these settings even after you close the dialog box.

Now every time you apply the Auto Color command, you will get much more balanced results (see Figure 5.29). You will also get the same results by clicking the Auto button in both the Curves and Levels dialogs.

FIGURE 5.29
The original image (left). The adjusted image using custom Auto Color settings (right).

Selective Color

Another very useful tool for applying specific color adjustments to print images is Selective Color. The Selective Color feature mimics the color controls found in most prepress drum scanners, which allow you to adjust "color in color." The Selective Color Options dialog box contains four sliders, one for each color in the CMYK color space (Cyan, Magenta, Yellow, and Black). This

makes it an ideal tool for tweaking images that have already been converted to CMYK. You can choose a general color to adjust in the image from the Colors menu at the top of the dialog, and then move the CMYK sliders to the left or right to shift them toward a primary color (see Figure 5.30).

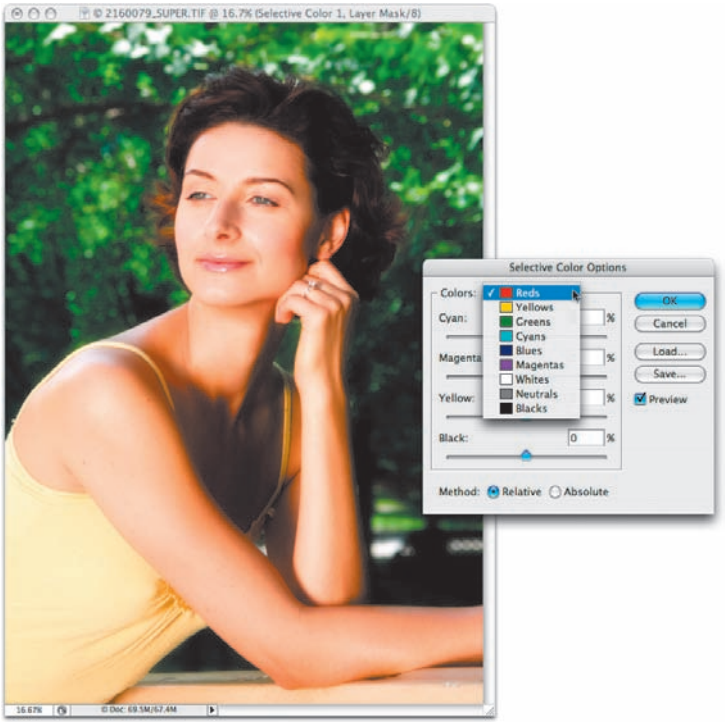


FIGURE 5.30
Choose a color to adjust from the Colors menu at the top of the dialog box.

Moving a slider to the right shifts whatever color is selected from the menu toward the color that the slider controls (cyan, magenta, yellow, or black). Moving a slider to the left shifts the chosen color toward the exact opposite color on the color wheel from C, M, Y, or K. Therefore, even though the dialog uses CMYK sliders, you can add red, green, and blue by moving the Cyan, Magenta, and Yellow sliders to the left (something to keep in mind when using Selective Color with RGB images).

The bottom of the dialog box offers two ways to adjust selective color: the Relative or Absolute method. The Relative method changes areas relative to how they started, whereas the Absolute method applies the exact amount specified. In general, Relative mode is a much gentler adjustment, which makes it more useful than Absolute mode for fine-tuning color in CMYK images.

Selective Color can be used as an alternative to Curves for balancing the magenta-to-yellow ratio in CMYK images containing lighter flesh tones (see the "Adjusting Skin Tones for Press" sidebar earlier in this chapter). Like Curves and Levels, Selective Color is also available as an adjustment layer, which means that you can store your settings in a layered CMYK TIFF or PSD file and change them later as needed—even after the image is placed in a layout.

Notice that in addition to the RGB and CMYK colors, the Colors menu also contains options for adjusting Whites, Neutrals, and Blacks. By choosing Blacks from the Colors menu and moving the Black slider to the left, you can lighten the shadow areas of an image. If you're preparing a CMYK image that contains a lot of black areas for press, you can make the blacks richer by moving the sliders to the right and applying the preferred "black build" (see Figure 5.31).

FIGURE 5.31
The original image (left). Making the blacks richer with Selective Color (right)—*now that's black coffee!*

You can brighten the highlights in an image by choosing Whites from the Colors menu and moving the Cyan, Magenta, and Yellow sliders to the left. This is especially useful when working with metallic images, in which case you may want to try using Absolute mode to heighten the effect (see Figure 5.32).

FIGURE 5.32
The original image (left). Brightening the highlights with Selective Color (right).

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With Neutrals chosen from the Colors menu, you can adjust the midtone areas of an image. By moving the Black slider to the left, you can lighten the midtones and help bring out detail (see Figure 5.33). Keep in mind that unless you make a selection first, all neutral Selective Color adjustments are applied to the entire image. This is why Curves is still the better tool for fine-tuning specific areas of an image.

FIGURE 5.33
The original image (left). Lightening the midtones to bring out more detail (right).

Photo Filter

Something else to take into consideration when preparing images for print is color temperature. Some of the images that you are working with may contain an unwanted "warm" or "cool" color cast, whereas others may require a warm or cool shift to emphasize the subject matter of the photo, and ultimately the message of your print design or layout. "Warm" images contain a predominant amount of reds, yellows, and oranges. "Cool" images contain a predominant amount of blues, cyans, and purples.

Photo Filter allows you to emulate the same filters that professional photographers use to correct tainted color temperature. It can be applied by choosing Image ➢ Adjustments ➢ Photo Filter, or by adding a Photo Filter adjustment layer.

The Photo Filter dialog box allows you to choose a warming or cooling filter to apply to your image (see Figure 5.34). You can also control the density (or strength) of the filter by moving the Density slider at the bottom of the dialog. The Preserve Luminosity option applies the color effect without altering density. Disabling this option darkens the effect.

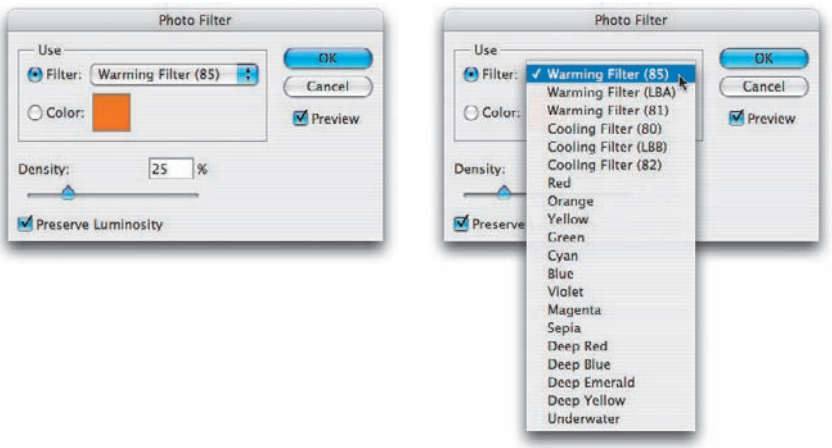


FIGURE 5.34
The Photo Filter dialog box (left). The available filters in the Filter menu (right).

Although there are much better tools for removing color casts, such as Levels or Curves, Photo Filter can be a lot easier to work with when correcting color temperature. You can use the warming filters to remove blue color casts or to add emphasis to warm images such as a sunrise or sunset. Cooling filters can remove yellow or orange color casts, or accentuate the cold nature of images such as a winter scene (see Figure 5.35).

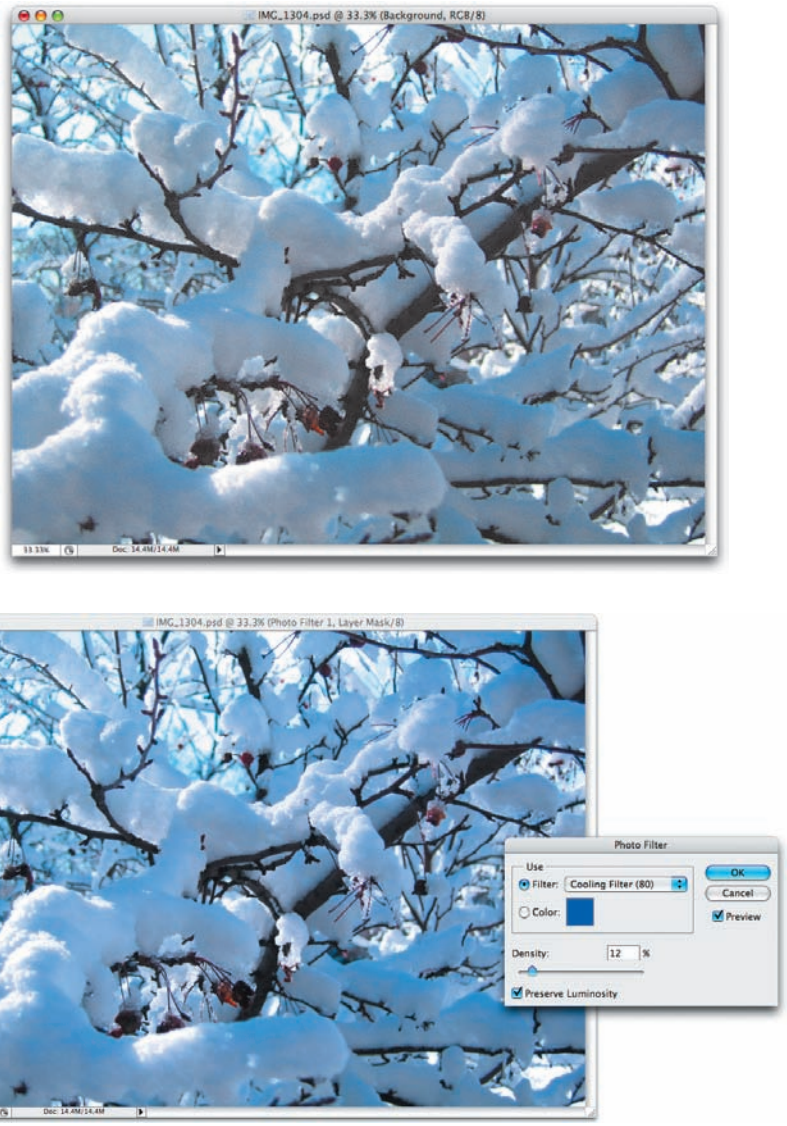


FIGURE 5.35
This photograph of a winter scene is nice, but the chilliness of the snow could be accentuated (top). A Photo Filter layer with the Cooling filter (82) applied adds a slight blue cast to the snow, thereby emphasizing the cool nature of the subject (bottom).

Shadows/Highlights

Shadows/Highlights is a decent alternative to Curves for correcting dark, backlit images, which are often caused by the light source being positioned behind the forefront object in a photo. Shadows/Highlights can also be used to correct images that contain overly bright highlights, which are often caused by the photographer using a flash setting that is set too high.

As a designer, I'm sure you've been forced to work with the occasional poorly lit image (okay, maybe more than occasional), and in the old days of Photoshop, the only way to correct them was to become a Curves expert (*still* a very good idea, by the way). But when Photoshop introduced the Shadows/Highlights feature in the first version of CS, it made this task faster and easier. Although technically not as accurate as Curves, Shadows/Highlights still does a pretty darn good job of enhancing horribly lit photos and making them suitable for print.

Before explain the Shadows/Highlights dialog box, I should first mention that this adjustment is available only under the Image ➢ Adjustments submenu and not as an adjustment layer—a major downside to using this tool (adjustment layers offer more flexibility and control, because they allow you to make changes to the adjustment any time after it is applied). However, in CS3 you can now apply a Shadows/Highlights adjustment to a smart object in the same way that you can apply filters to smart objects (for more on smart filters, see Chapter 8, "Layer Styles and Filter Effects"). The other downside to Shadows/Highlights is that in order to adjust a specific area of an image, you must first make a selection before accessing the dialog—something you do not have to do with Curves.

To apply a Shadows/Highlights adjustment, open a poorly lit image and choose Image ➢ Adjustments ➢ Shadow/Highlight. To really make the most of this tool, select the Show More Options check box at the bottom of the dialog. This expands the dialog to display additional settings (see Figure 5.36). Also, make sure the Preview check box is selected in order to see your adjustments applied as you make them.

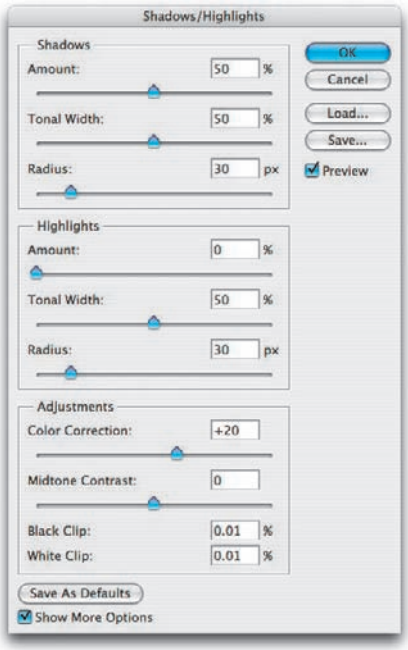


FIGURE 5.36
The fully expanded Shadows/Highlights dialog box

By default, the Amount setting in the Shadows area is set to 50%—which, depending on your image, could be a radical adjustment. The first thing to do is set that value down to 0% (see Figure 5.37). Now you can preview your image without any adjustments made and better determine what needs to be fixed.

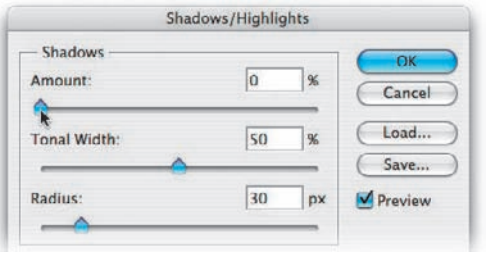


FIGURE 5.37
Start out by setting the Shadows Amount to 0%.

To brighten a dark image, move the Amount setting in the Shadows area to the right until the hidden detail starts to appear. The next step is to set the Tonal Width for the Shadows adjustment. The Tonal Width slider controls the brightness range that is affected in your image. Lower settings limit the adjustment to the darkest areas of the image; higher settings let the adjustment creep into the image's brighter areas.

After you've defined the brightness range that you're adjusting with the Tonal Width setting, you can then set the Radius amount. The Radius setting determines the amount of surrounding image area that Photoshop should include when blending in the adjustments you've made. Moving the Radius slider to the right causes the areas that you've adjusted to blend in more with the surrounding image area; moving it to the left creates more contrast between the shadows and midtones. For an example of how the Shadows sliders can be used to lighten an image, see Figure 5.38.

In the example shown in Figure 5.38, the Shadow settings that were used helped lighten the shadows and reveal detail, but the image still lacks contrast. To correct this, contrast must be fine-tuned in the areas of the image that haven't changed (the midtones). You can increase contrast by moving the Midtone Contrast slider to the right.

Finally, now that the brightness and contrast have both been corrected, the image in Figure 5.38 could use some color saturation. This can be done by increasing the Color Correction value.

To correct an overly bright image, move the Amount slider in the Highlights area of the dialog to the right. Doing so darkens the brightest areas of the image. After the preferred darkness amount is set, use the Tonal Width, Radius, Midtone Contrast, and Color Correction sliders in exactly the same way as you would when correcting a dark image (see Figure 5.39).

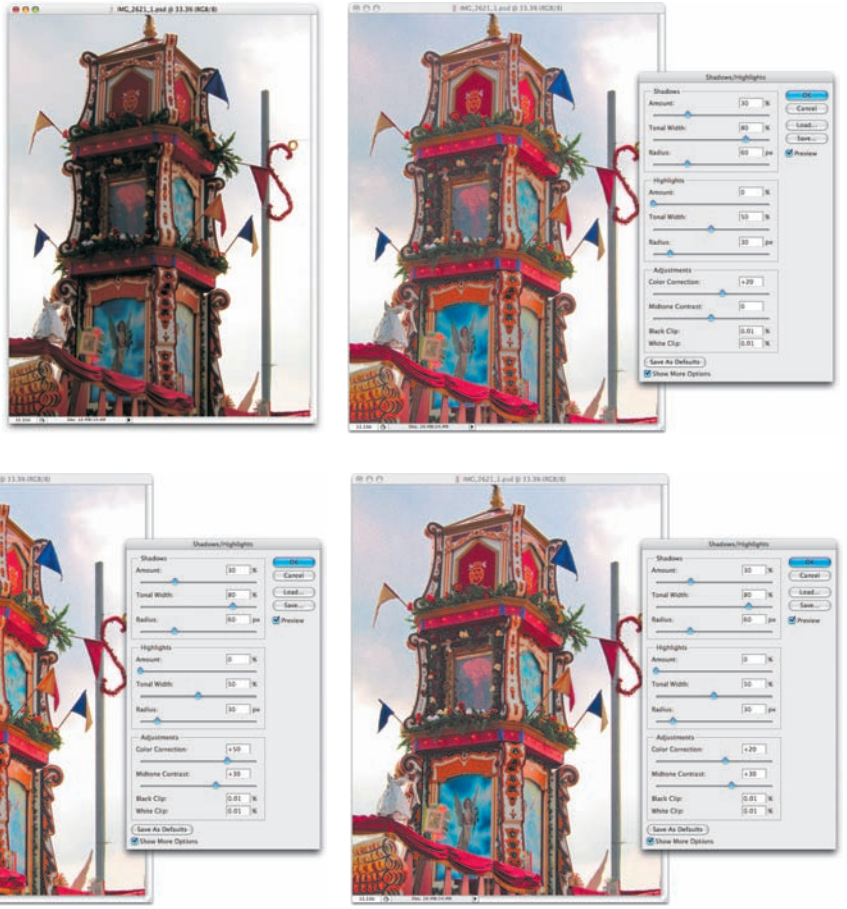


FIGURE 5.38
The original image (top left). Lightening the shadow areas (top right). Increasing midtone contrast (bottom left). Increasing color saturation (bottom right).

FIGURE 5.39
The original image (left). Darkening the highlight areas with Shadows/Highlights.

The Bottom Line

Color Correct an Image by Using Levels or Curves When it comes to color correction, Levels and Curves offer you the most control. Both commands allow you to make selective as well as global corrections by applying nonlinear adjustments.

> **Master It** Open an RGB image that needs color correction. Determine whether the correction requires a detailed tonal correction, or a quick global correction, such as lightening the midtones or increasing overall image and contrast. Choose the proper tool (Levels or Curves) and make the necessary adjustment.

Use Selective Color to Fine-Tune a CMYK Image Another very useful tool for applying specific color adjustments to print images is Selective Color. The Selective Color feature mimics the color controls found in most prepress drum scanners, which allow you to adjust "color in color."

> **Master It** Open a CMYK image that requires some prepress tweaking, such as an image containing lighter flesh tones, or an image that contains a large amount of black coverage.

Use Photo Filter to Enhance or Correct Color Temperature Some of the images that you are working with may contain an unwanted "warm" or "cool" color cast, whereas others may require a warm or cool shift to emphasize the subject matter of the photo—and ultimately the message of your print design or layout.

> **Master It** Open an image that requires a shift in color temperature. Use Photo Filter to either remove a warm or cool color cast, or to add a slight color cast that emphasizes the subject matter of the photo.

Apply Lighting Adjustments by Using Shadows/Highlights Shadows/Highlights is a decent alternative to Curves for correcting dark, backlit images, which are often caused by the light source being positioned behind the forefront object in a photo. Shadows/Highlights can also be used to correct images that contain overly bright highlights, which are often caused by the photographer using a flash setting that is set too high.

> **Master It** Use Shadows/Highlights as an alternative to Curves for correcting a backlit image or an image that contains overly bright highlights.

Chapter 6

Enhancing and Retouching for Print

Enhancing and retouching images typically involves a sequence of global and then local image adjustments. Global enhancements may include brightness, contrast, and color balance corrections. Local retouching adjustments can include the covering up or removal of elements in an image, or perhaps more subtle alteration or de-emphasizing of elements. Both types are often applied as part of an integrated image adjustment workflow. All enhancements and retouching must be accomplished with final print output in mind, because poorly executed adjustments may leave telltale signs or artifacts that become apparent when output at high resolution.
In this chapter, you will learn to:

- Enhance print images by using Photoshop's various cloning tools
- Clone between images with the new Clone Source palette
- Retouch high-resolution photographs
- Apply geometric enhancements (crop, straighten, and distort)

Enhancing Images

Global enhancements for print include image-wide corrections of brightness and contrast, color correction, and sharpening that focus on print-specific adjustments such as setting minimum printable highlights and maximum printable shadows. These adjustments should usually precede local image enhancements.

There are many tools designed for local enhancements or retouching, including the Clone Stamp, Patch, Healing Brush, Spot Healing Brush, and the Red Eye Removal tools. In addition, other more-generic tools such as the marquee selection and even the blurring tools can be wielded quite effectively as retouching tools. Some retouching actually repairs an element that should not be there, such as the removal of a scratch or scan line. Other retouching merely mitigates or enhances features or characteristics that are there, such as the removal of a skin blemish or the reduction of some wrinkles. Your speed and success will be determined by your proper evaluation of your retouching challenge and your choice of tool or tools best suited to meet that challenge.

For our exploration, let's divide our image enhancing and retouching techniques into three main (and not entirely exclusive) categories: cloning image elements, retouching people, and geometric enhancements. As you will see, there is no hard dividing line between cloning and retouching. And along the way we will integrate these local adjustments into global corrections, including geometric enhancements, that usually should be applied prior to cloning or retouching.

Repairing Image Elements Image repair techniques are used when some of the contents of an image need to be altered from their original condition to repair or improve the image. Techniques and tools include the use of cloning, patching, healing, and even copying and pasting.

One of the most common uses of these tools and techniques is for the repair of damaged images. Although most often these tools and techniques simply involve copying (cloning) elements, these tools and techniques can also be used with greater subtlety when carefully configured and applied. Photoshop's Clone Stamp, Patch, and Healing brush tools are very useful for these kinds of projects. In addition, Photoshop CS3 has added a Refine Edge adjustment, which in combination with the simple Lasso and marquee selection tools can be used as an effective repair device as well.

Retouching People Retouching people represents an image repair specialty subset, so we cover it as a specific topic here. Entire books have been written on the subject, and rightly so, but we cover here some common and useful techniques. Most retouching tools and techniques involve more subtle adjustments than straight cloning. Very often subtle tonal variations need to be maintained while blemishes are removed or features altered. These subtleties require more-sophisticated tools than a straight copy/clone technique can provide. Retouching can also include some forms of color correction. Sometimes retouching requires multiple corrections with several tools. Tools such as the Healing Brush, Spot Healing Brush, and Patch tools are your prime weapons here—although when subtly applied, the Clone Stamp tool can be used effectively as well.

Geometric Enhancements This category changes the physical characteristics of an image to improve its appearance. Changes such as straightening, cropping, and distorting fall into this category. Often simple and seemingly subtle changes to an image's geometry can have a powerful impact on its overall appearance. Photoshop's Crop tool, Info palette, Ruler tool, canvas rotation controls, and distortion filters are some of your prime weapons in these image-enhancement endeavors.

PRINT-SPECIFIC QUALITY ISSUES

When you intend to output for print at a high line screen (≥ 150lpi) or stochastically, attention to detail is especially important. Poorly applied retouching that contains artifacts that may not be apparent on forgiving low-resolution monitors or proof printers may become obvious when output on less-forgiving higher-resolution devices.

Let's start our exploration of image retouching and enhancements with a discussion of cloning and some projects illustrating its effective use.

Repairing Image Elements

Cloning in its many variations typically involves the copying and reproduction of an image element from one area of an image to another. So, when you think about it, cloning is really just another image composition or combination technique. And like any image composition technique, a successful clone depends largely upon characteristics of the edges of the cloned object or area. In nearly all circumstances, cloned objects need to have gradational edges. *Gradational edges* allow cloned objects or areas to blend in with their new surroundings. Sometimes the edges need to be wide and smooth, and other times narrower and more abrupt. Cloning is often performed with a brush-type tool, so you can control the edge transition of your cloned object or area by controlling the characteristics of your cloning brush (for more on brushes, see Chapter 3, "Working with Brushes").

Cloning to Cover

You can use cloning to effectively cover a portion of an image that is not necessarily damaged or blemished, but is perhaps a part you wish were not there. Here is a good example. Figure 6.1 is an image called Morning Majestic. (We have supplied the starting image on the companion CD if you would like to try your hand at this.) This photo was shot during a glorious early morning sunrise in Alaska. It was one of those times when the light quality would be so ephemeral that it would last for only a few minutes, at best. So the shot had to be taken while the light was right. There was no time to position the camera to eliminate all of the unwanted foreground; therefore, the image was composed focusing on the sky and mountains and their balance with the foreground. With this image, the emphasis was placed heavily on the sky.

FIGURE 6.1
Kachemak Bay sunrise

© 2007 Taz Tally

The framing nature of the foreground trees was worth preserving. The rooftop and low-contrast snow were ignored, because this could be dealt with later in Photoshop. One of the many advantages of shooting digital is that you can focus your attention on the main components of your image without everything having to be perfect, and perhaps miss the shot. There was time to shoot only two images before the light was gone. Stalling for even a moment would have meant not capturing the image at all.

Although the overall composition is good, there is too much distracting foreground imagery with the top of the building, the low-contrast and uninteresting snow, and barely visible details in the vegetation. The contrast could also be bumped up a bit. A good way to get a head start on all of this is to apply a Levels adjustment layer (Figure 6.2). The goal is to silhouette the foreground, making it darker and removing all the distracting detail. This can be accomplished by Option/Alt+clicking and dragging the shadow slider to the right until all the shadow foreground is filled in. This is one of those circumstances when preserving detail is not the goal.

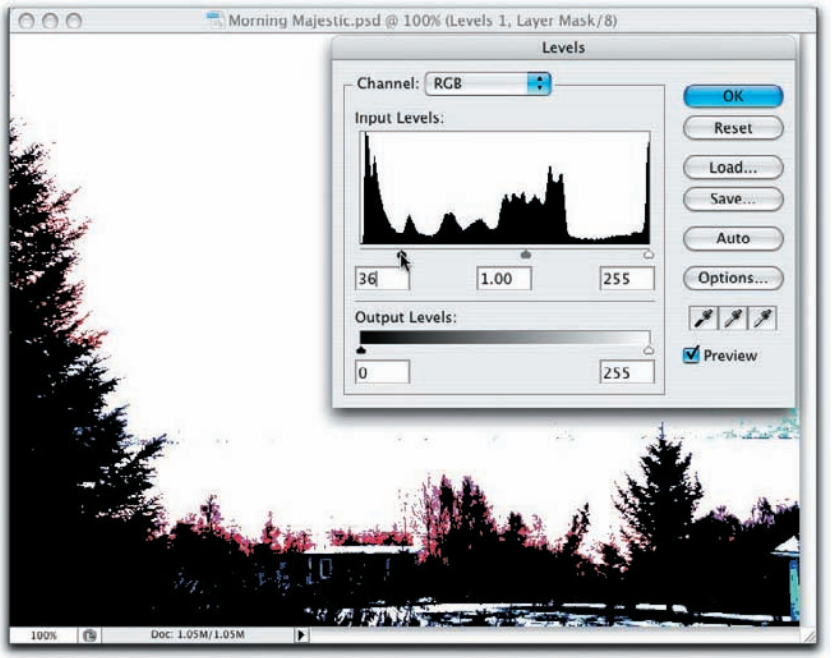


FIGURE 6.2
Levels adjustment layer

SILHOUETTING FOR PRINT: LOSING THE DETAIL

To make sure that the shadow portion of an image will not show any detail, simply run your cursor over the shadow areas that you'd like to silhouette. Monitor the Info palette RGB or CMYK values as you position the cursor. RGB values should be less than 12, which corresponds to CMYK values of 95%. Ink values darker than 12 (95%) will fill in when printed and make effective silhouettes.

This adjustment of course has little effect on the tonal values in the snow that were too light to be affected by the move in the shadow. Enter the cloning tool!

First, in order to be able to use the clone stamp tool I recommend you activate a duplicate of the initial background layer to create an "Edit" layer (name it whatever you like), and use this to complete the remainder of this adjustment.

Next, the photographer zoomed in to near the top of the snow-covered roof and configured the Clone tool to cover the roof with the filled-in shadow values of the silhouetted foreground.

CLONING PREP

Here's a 10-step process that includes several tips and shortcuts for better cloning:

1. Type S to activate the Clone Stamp tool.

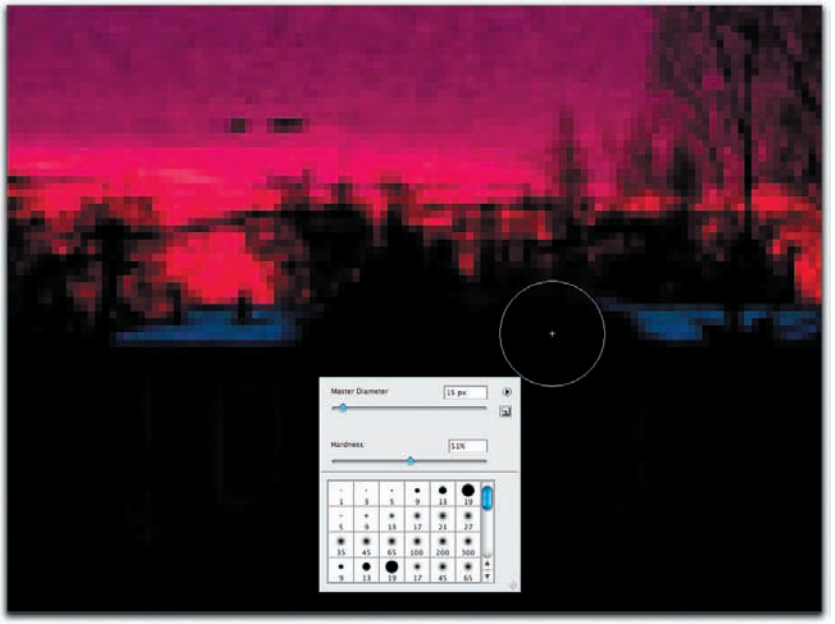
2. Press Return/Enter to display the Options palette, if it is not already visible (Figure 6.3). If the Options palette is already visible, pressing Return/Enter will highlight the first configuration field (the Opacity field). Note that pressing Return/Enter activates the first Options palette field for all Photoshop tools and is a terrific time-saver. You can also Tab to other available Options palette fields and press Return/Enter again to apply your choices and return to the active tool.

FIGURE 6.3
Clone tool options

3. I rarely work with a 100% opacity. I typically work at between 50% and 75% (here 75% opacity was used) to work over the clone areas a couple of times from at least two separate clone source locations. This prevents any obvious visual streaks from occurring. It is important to keep in mind that the edges of single cloning strokes that may be invisible onscreen may become apparent when printed.

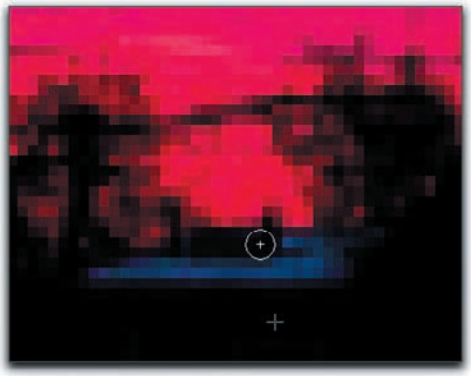
4. To activate the Brushes dialog box, Control+click (Mac) or right-click near the area where you'd like to use the Clone tool (Figure 6.4).

FIGURE 6.4
Clone tool brush configuration and use



5. Make the size of your Clone tool brush a bit larger than the width of the swath you want to cover (Figure 6.5). Here, most of the rooftop could be cloned with one stroke. So the starting width was about 15 pixels.

FIGURE 6.5
Reduce the brush size for tight areas.



6. Because you are essentially using the Clone tool as an image-compositing tool, you want to make sure that the cloned edges blend in with the receiving area. This means that a gradational edge—a soft edge—is in order. You can control the hardness of your cloned edge by adjusting the edge hardness of your brush (here about 50%). This too will help prevent any obvious edges from appearing on final output.

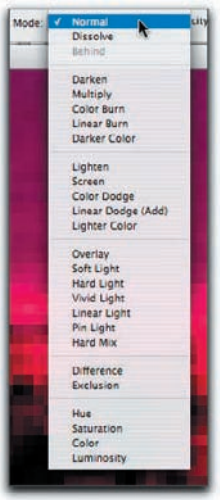
7. Use your [and] bracket keys to adjust the radius of the Clone tool on the fly. This is a quick and easy way to switch to a smaller radius brush for use with more-detailed cloning work. Here on the left side, where the roof edge is up against the reflective water, I moved to a much smaller brush to accomplish the clone.

8. Hold down the spacebar and ⌘/Ctrl+drag to marquee over any detailed work areas that you'd like to zoom in on. Use your spacebar alone to temporarily access the Hand tool and move around locally. Then press ⌘/Ctrl+0 to zoom out and fit the image onscreen. This sequence is so handy and time-saving in all of your Photoshop work. The bonus is that these navigation shortcuts work even when you have an active dialog box open.

9. Set your Clone tool Mode (Figure 6.6) in the Options palette to match how you want the cloned area to look. Here, the cloned area is supposed to match the rest of the foreground; therefore, Normal was chosen so that the pixels would be cloned as is, without applying any blend mode effects (for more on blend modes, see Chapter 7, "Combining Image Layers").

10. It is worth emphasizing that standard cloning protocol uses 50% to 75% opacity and several source points from multiple clone locations. Doing so prevents the formation of obvious clone lines in your image. Sure, there are times when you might clone at 100% opacity, but only if you are sure that clone lines will not be produced. If there is ever a doubt, use multiple clone locations at reduced opacity. Always err on the side of redundancy to guarantee that high-quality final prints will be produced from your image edits.

FIGURE 6.6
Clone tool mode options



The preceding cloning tips and techniques were applied to all of the snow-covered foreground areas to complete the silhouetted image shown in Figure 6.7.

FIGURE 6.7
Clone results

Cloning to Remove Contents

In this project, you will apply some of the tips and techniques discussed in the preceding section to a cloud image that has been damaged by scan line blemishes. Your goal is to remove the scan lines. You will use both the Clone Stamp tool technique and a selection cloning technique.

Removing with the Clone Stamp Tool

You will start with the Clone Stamp tool to remove the scan lines in the sky:

1. From the companion CD, open and make a duplicate copy (Image ➢ Duplicate) of the Clouds RGB image (Figure 6.8). Name the copy **`Clouds RGB_Repaired`**.
2. Zoom in on one of the obvious scan lines in the sky located near the top-left quadrant of the image.

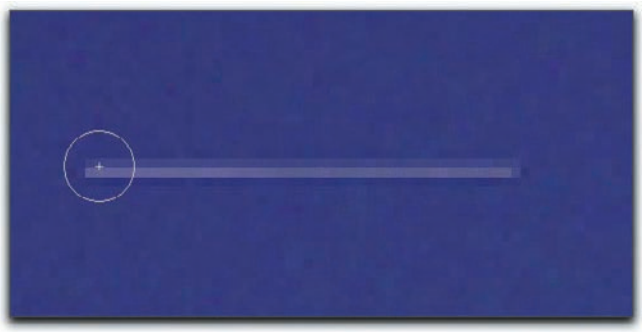


FIGURE 6.8
Zoom in on the scan lines in the Clouds image.

3. Configure the Clone Stamp options in the Options palette as follows:

Brush Size	Slightly larger than the scan line, here 8 pixels.
Hardness	About 50%.
Mode	Normal, because you will be replacing the scan line with surrounding sky.
Opacity	Try 100% here. This is where using a fuzzy-edged brush provides enough blending with the background.
Aligned	Selected, so that the clone source will follow the clone brush around at the same distance and offset.

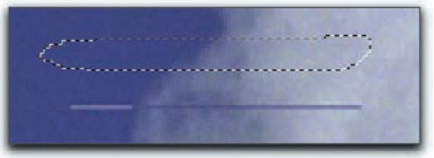
4. While still zoomed in, Option/Alt+click above and slightly to the right of the beginning of the scan line to establish the clone source starting point. Using clone pixels slightly offset from the intended clone line will also help prevent the formation of any obvious cloning artifacts.
5. Now click and drag the clone tool across the scan line. Voilà—the scan line is gone, with no artifacts of its removal. Sometimes it is just that easy if you pay attention to brush size, hardness, and clone position—and the clone source cooperates!
6. Perform this same scan line removal on the other scan lines against the sky.

Patching Up with the Patch Tool

Here is an easy to use technique that involves the Patch Tool in a repair/removal chore:

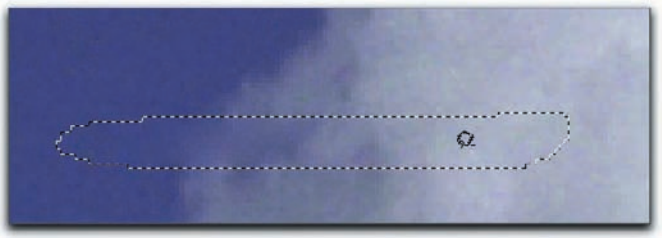
1. With `Clouds RGB_Repaired` still open, zoom in on one of the scan lines that crosses from the sky into the clouds. This type of repair can be tricky when a blemish, in this case a scan line, crosses several different image features that are separated by high contrast edges.
2. Select the Patch tool (one of the tools included with the Healing Brush tool set).

3. With the Patch tool active draw an elongated irregular shaped area just above and a little bit longer than the scan line you want to remove. This will define the area from which pixels values will be sampled to replace the scan lines.



4. Note that in the Patch tool Options palette, you have the choice of Source or Destination. Here, click on Destination. This will use the pixels from this area to the Desination when you drag the selection in the next step.

5. Now, with the Patch tool still active, click on and drag the selected area over the scan line, so the selection covers the scan line. This will result in the scan line being replaced/patched by the pixel values of the selected area. Note: To understand how the Patch tool responds when configured as Source instead of Destination, repeat this step with the Source button checked. You will see the scan line moves into the selected area.



Remember: With any repair chore, if you are unsure of the results you are creating, and want to have the option of easily returning to the original image, simply select the area you intend to repair and place it on its own layer prior to commencing your repair work.

Removal with the Select and Refine Edge

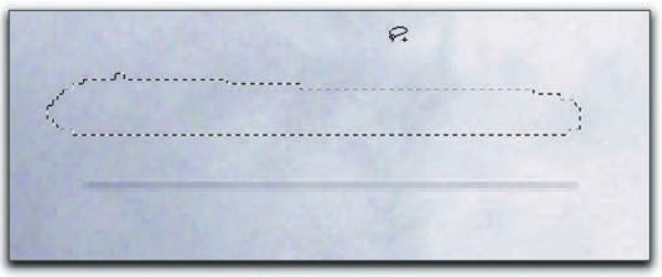
Here is a technique that uses Photoshop CS3's new Refine Edge tool, which is useful when you want to clone an area rather than a line as a clone source:

1. Keep `Clouds RGB_Repaired` open and zoom in on one of the scan lines that appears in the clouds. You can try and often successfully use the preceding Clone Stamp tool technique here, but sometimes you will find that the clone tool leaves some artifacts or you have to work too hard to achieve the results you want. This is when area cloning can help.
2. Select your Lasso tool (press L), and then in the Options palette, configure it with the Feather amount set to 0 pixels, and Anti-alias selected (Figure 6.9).

Figure 6.9
Lasso Options palette

3. Draw an oblong and slightly irregular selection around an area in the sky, either above or below the scan line, as shown in Figure 6.10. Select an area that is similar in appearance to the area through which the scan line cuts.

FIGURE 6.10
Lasso selection



4. You can switch back and forth between the Normal and Quick Mask view (that offers a more accurate view of your selection edge) by pressing the Q key (Figure 6.11). Note that because you only applied an anti-aliased edge and did not feather it, the edge is fairly abrupt, and if used like this, might print with obvious edges. Hey, I know it's easy to forget to feather a selection edge prior to creating it. And besides, how do you know how much you want to feather an edge before you create it? The good news is that Photoshop CS3 provides you with an excellent selection edge modification tool known as the Refine Edge adjustment.

FIGURE 6.11
Quick Mask view

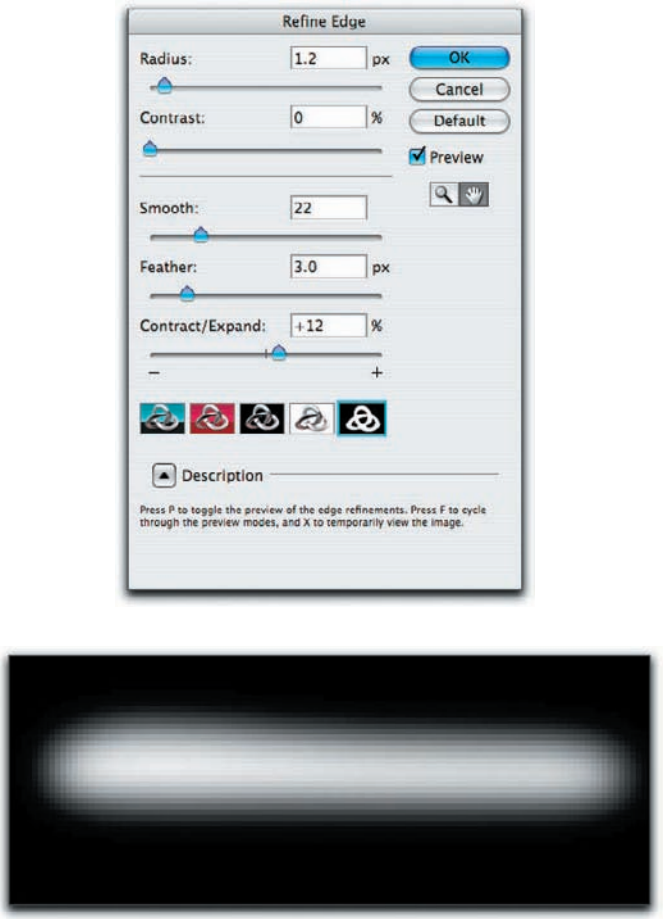
5. Now click the Refine Edge button on the right side of the Options palette (you can also access this dialog view via the Selection ➢ Refine Edge menu choice or by typing ⌘+Option+R for the Mac or Ctrl+Alt+R for Windows). The Refine Edge dialog box appears.
6. This Refine Edge dialog, while a tad bit confusing, allows you to completely control the characteristics of your selection edge and (here is the really cool part) it does so while you see the results of your changes in real time. For the selection I have made here, I applied the following adjustments:

Setting	Value	Effect
Radius	1.2	Larger values widen the edge zone internally.
Contrast	0	Larger values narrow the edge zone internally.
Smooth	22	Larger values create a softer edge zone.
Feather	3.0	Larger values widen the edge zone externally.
Expand/Contract	+1	Expands or contracts the dimensions of the original selection—very handy!

Note: In addition to all these controls, you have the ability to select from a range of ways to display your selection by clicking on the looped icons near the bottom of the Refine Edge dialog box (Figure 6.12).

Click OK when you have your edge configured the way you like.

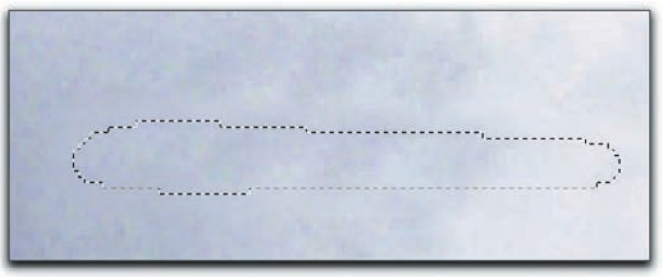
FIGURE 6.12
The Refine Edge dialog box and the adjusted selection Refine Edge view



7. Press ⌘+Option (Mac) or Ctrl+Alt (Win) while clicking your selection. Your cursor will appear as a double-headed arrow, indicating that it is now a copy tool.
8. Drag your selection over the target scan line, and release your mouse and keys; the scan line disappears and is replaced by a cloud! (See Figure 6.13.) And because you have used an irregular, well-feathered gradational edge, you can be confident it will print without any clone artifacts.

Selection cloning like this works well with many types of areas such as skies, clouds, and backgrounds that have either consistency or randomness, or both, in their element patterns. And it is best to use the Lasso tool rather than a marquee tool, so that you can create irregular selection edges that are less likely to create visually apparent cloned edges when you print.

FIGURE 6.13
Selection cloned area



CONTROLLING EDGES

As discussed in the preceding sections, when cloning, you are blending image elements together—be they discrete image elements that exist on layers or cloned areas—and the key to success with blending is controlling the edges of the added elements. There have historically been three levels of edge control:

Anti-alias This is an on or off function that adds a narrow edge of semitransparent pixels to elements such as type or selections. It applies the minimum amount required for blending.

Feathering This is an edge gradation tool that can add full pixel width increments of gradation to a selection. This is an effective, but coarse, edge gradation tool.

Creating and Editing Masks via Blurring, Sharpening, Levels, or Curves Creating and editing alpha channel (or Quick) masks has historically been the way to exert the most control over the characteristics of your selection edges. For instance, if you blur pixels in a mask with the Gaussian Blur tool, you have the ability to work with increments of 0.1 pixels. This provides you with 10 times the level of control that feathering does, which works in only full pixel increments. But this level of control (creating, editing, and loading masks) has required a big step up in terms of knowledge, conceptualization, and sophistication of skill. You can learn to feather in five minutes; mastering masks takes considerably longer.

The new Refine Edge tool brings, in one dialog box, much of the selection edge control you used to have to venture into masks in order to achieve. Alpha channel masks will never become obsolete, because there will always be the need and desire to manually edit masks. But the Refine Edge tool is a huge step forward in providing easy access to sophisticated selection edge control that allows you to create well-hidden, high-quality, printable clones.

Cloning between Images

The concept of cloning can be taken to a more sophisticated level through the use of the Clone Source palette, which allows you to specify, numerically if you choose, multiple clone sources. By using the Clone Source palette, you can establish and repeatedly use up to five clone sources. And you can even clone between images. And you can control transparency and blending mode as well. Here is an image-enhancement project to show you how to take advantage of this powerful tool.

Say that a client needs an image of her cabin, which she rents out during the summer, to place on her website. Let's say you don't particularly like the sky in the original photo and can't wait for

the sky to cooperate, so you'll use the Clone Source palette to try several cloud images as clone sources to help you find the one you'll ultimately use.

The first move, after making a working duplicate copy of the cabin image of course, is to remove the cabin sky by selecting the light sky and deleting it. This is done so that the original sky will have minimal interaction with any other sky image that might be used to clone with. When you make the selection to delete the sky, be sure to feather the edge of your selection as described in the previous section. This feathered edge provides a good gradational transition for blending in the borrowed sky image that you will be cloning in. As a result, your selection edge will not be apparent when printing your final image.

When you create a selection edge such as this, you will want to be cognizant of the results on the final edge. As I've discussed elsewhere, you can use minimal or slight selections to control the selection process. And remember that any replacement or cloning process like this can be performed on a separate layer to protect the original contents and allow you to easily and quickly return to an initial or previous image state.

Figure 6.14 is the original cabin photo and the final sky image (Denali State Park), both available on the companion CD. The Clone Source palette was used with just one image here, but four cloud images were used in this same way during the cloud image selection process. And yes, it sure helps to have a wide, flat plane display with plenty of display pixels to work with (and of course we're working on copies!).

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FIGURE 6.14
The cabin and Denali State Park images

Here is how this works: The images were placed side by side on a wide monitor, with the clone source sky image on the right. By the way, it is a good idea to resize the images so the clone source area is at least close to the dimensions of the areas in which you will be cloning it. A perfect fit is not required, as you will see. Next, I created a new layer named Sky in the cabin image document (Figure 6.15). It's always a good idea to work in a layer so that re-dos and editing are much easier.

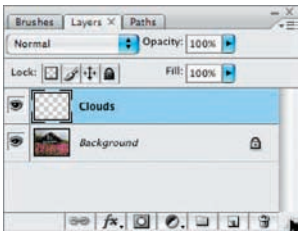
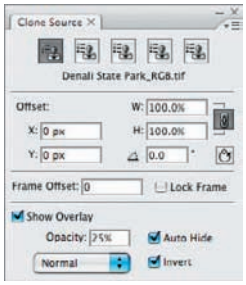


FIGURE 6.15
Layers palette

The next step is to activate the Clone Source palette (Windows ➢ Clone Source; Figure 6.16). Note that if you use this palette often, you may want to assign a keyboard shortcut to access this palette (Edit ➢ Keyboard Shortcuts).

FIGURE 6.16
Clone Source palette



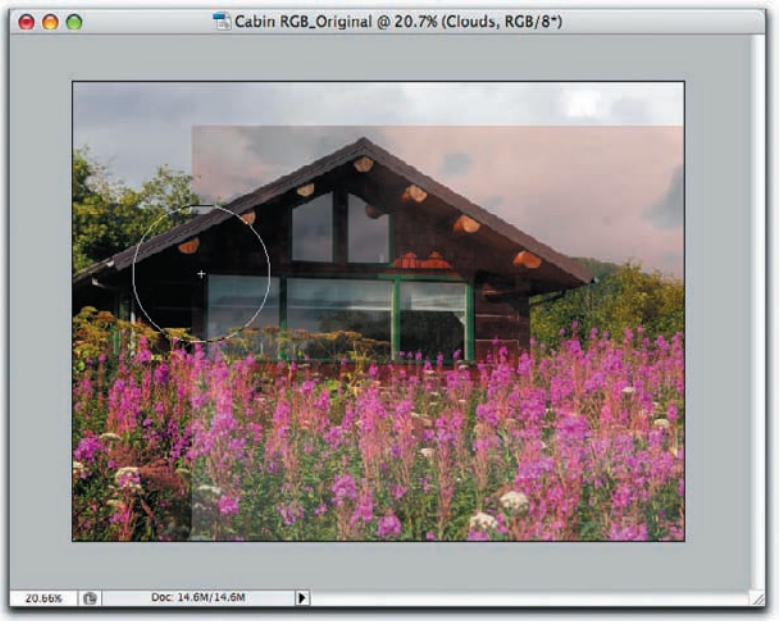
At the top of the Clone Source palette, you will notice five Clone Stamp tool icons. For the clone sources, you must click on one of these icons and then click in the clone source image to establish the starting point of the clone source. Where you click is recorded as the (0,0) XY position. After you establish your starting clone source positions, you only need to click the clone source icon that relates to that image in order to access it. You do not need to activate the clone source image; this is an enormous time- (and frustration-) saver. Having access to the clone source image in this manner also means that you can undo and redo your cloning process as many times as your heart desires without having to physically reacquire the clone source. This allows you to concentrate on your cloning process rather then worry about the mechanics of cloning.

For this clone, the clone source starting position was established near the left side of the Denali State Park clouds. As always, the clone source is established by Option/Alt+clicking the clone source point with the Clone Stamp tool active (Figure 6.17).

FIGURE 6.17
Clone source location

To proceed with the clone, the Sky layer was activated in the Cabin image document. Now, before you start cloning, select the Show Overlay check box in the lower-left corner of the Clone Source palette. This allows you to see the dimensions of the clonable area of the clone source image in relationship to the clone target image. This clone overlay appears by default as a 25% screen on top of your clone target image (in Figure 6.18, the cabin image). Before you click the target cabin image to start your cloning, you will see the dimensions of the clone source screen overlayed on top of the cabin image. If you simply move your mouse around over the target image without clicking, the clone source screen will move with the cursor. This allows you to initially place your cloned image more precisely on your target image. Of course, because you have placed your cloned image on its own layer (as shown here), it will be easy to reposition it later, if you so choose. Now you can control the appearance of the overlay screen by configuring its Opacity and Mode settings. Click the Invert check box (located directly under the Show Overlay check box) to control whether to view the cloned image or an inverted (negative) version of it.

FIGURE 6.18
Clone source screen overlay



As you can see here, a large clone brush was chosen so that the image could be cloned quickly. Doing so allows you to rapidly clone in large sky areas and quickly test the clouds from multiple images. And as you will see, precision is not as important in this case as it might be in others. Next, the clone process began by clicking the far left side of the cabin image's sky and dragging the big clone brush across it. Note that as soon as you click with your clone brush, the screened overlay is set in the target image. The (0,0) point you established in the clone source image (here the Denali State Park image) is set wherever you initially click in the clone target image.

Using the screen overlay, the clone image was positioned so that the clouds would be cloned in as close as possible to the desired location in the image. Note that if accurate placement is necessary, you can zoom in to set the clone start location more precisely. To complete the clone, click and drag the clone brush across the sky area of the image paints in the cloned sky (Figure 6.19). The Show Overlay check box is now deselected (Figure 6.20).

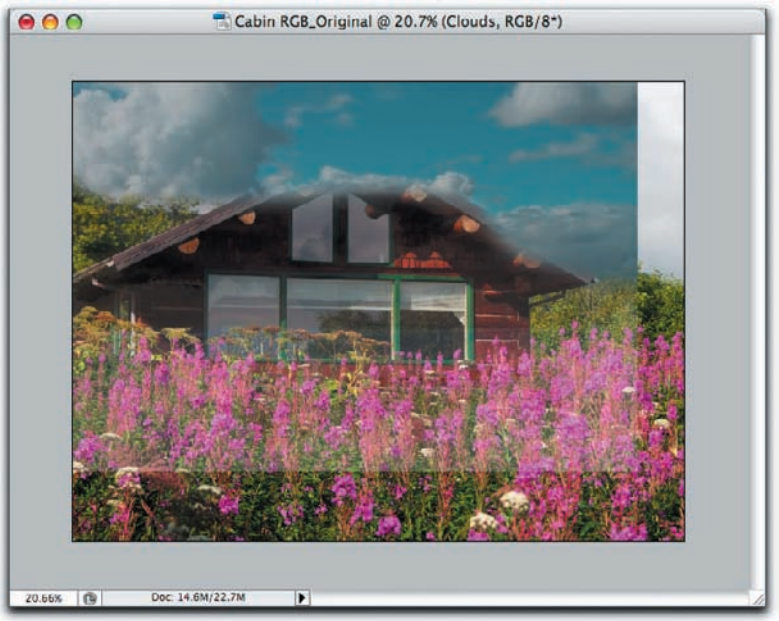


FIGURE 6.19
Clones in the image with the screen overlay

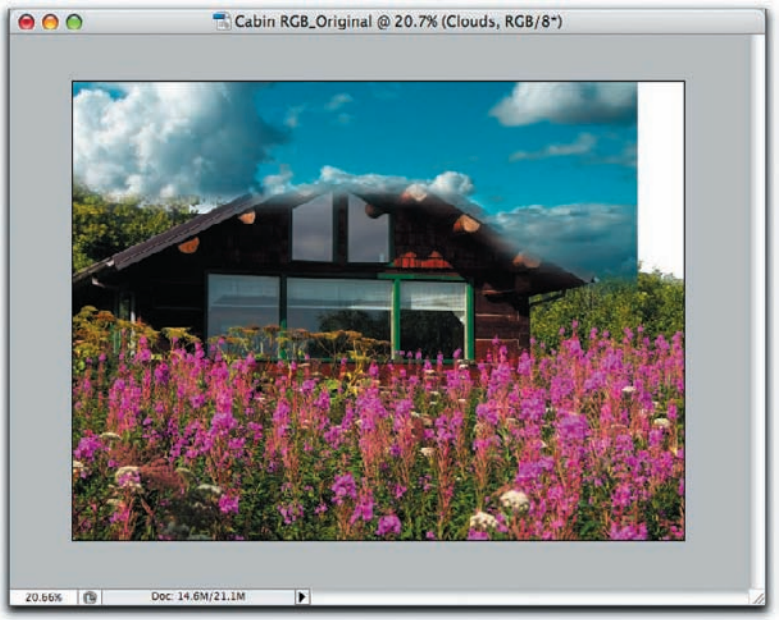


FIGURE 6.20
Clones in the image with the screen overlay off

You will notice that, because of sloppy cloning with a big brush, part of the cloned sky covers the top of the cabin—no worries! By clicking the blending mode in the Layers palette and selecting Darken, the cabin shows through and the sky is where it should be (Figure 6.21)!

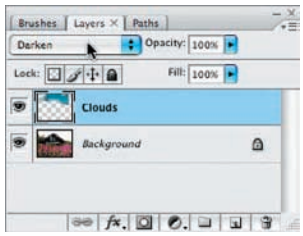


FIGURE 6.21
Layers blend mode set to Darken

One more step and we are done. You will note that the cloned sky does not completely cover the cabin sky. Again no worries! By typing ⌘/Ctrl+T to activate the Transform tool (or choose Edit ➢ Transform ➢ Scale), a transform rectangle forms around the cloned-in sky image. Hold down the Shift key (to keep the scaling proportional) and drag the lower-right corner of the transform box down and to the right until the cloned sky fills the cabin sky. Voilà—now *that* is an enhanced sky (Figure 6.22).

FIGURE 6.22
Cabin image with cloned-in sky

Retouching People

People have skin! And because people have skin, retouching them presents special challenges. Retouching skin is such an important part of so many people's digital chores that a whole toolset has been developed and refined with skin retouching in mind. This Healing Brushes toolset contains four brushes: the Healing Brush tool, the Spot Healing Brush tool, the Red Eye Removal tool, and the Patch tool. These four tools form the core of any toolset that you will use to retouch or enhance human skin, and most often human faces. Other tools, such as the familiar Clone Stamp, blur and sharpen tools, and the standard Levels, Curves, and Hue/Saturation tools, can be used, but the healing tools are the mainstay. And rightly so! The healing tools have been developed and refined specifically for working on human skin and especially human faces. You should also know that the Healing Brush tools work reasonable well on Klingons and Cardassians as well, but best on humans!

The Healing Brush tools work so well, in fact, that we often must exercise restraint in how we apply them. In many cases you can make people look so good that they … well … don't look human. For instance, you can indeed take all the wrinkles out of an 80-year-old man's face—and then he will look like a baby-faced 80-year-old. So when you are evaluating a face and deciding what to do and which tools you will use, think about the quantity of enhancement as well as the quality of retouching; ask yourself what is appropriate given the face, the lighting, and the environment. Let's work through some examples to see how these various tools work and how you might apply them.

Brightness and Contrast and Color Balance

Prior to initiating any retouching, you will want to perform an overall evaluation of the image and make any adjustments to its brightness, contrast, and color balance. Local retouching should be performed only after these primary image enhancements have been completed, because they will affect the nature of the local adjustments. Although these global correction skills are covered in detail in Chapter 5, "Tonal and Color Corrections," we are including them here as part of the workflow required for preparing an image for local cloning, retouching, and ultimately printing. Plus, in this section we are including a few tips on performing color correction of faces in the absence of neutral tonal areas. From the Chapter 6 folder on the companion CD, open the image of a girl named Hope shown in Figure 6.23.

FIGURE 6.23
Hope starting image

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To get started, make a duplicate copy onscreen (Image ➢ Duplicate), leaving the original at a diminished dimension to refer back to. Our first concern is the overall brightness and contrast of the image, which is low. Our second area of interest is skin tone ratios. You will want to consider both of these issues simultaneously because the specific technique you use to adjust the brightness and contrast should be affected by whether you have a problem with the color cast in the skin tones.

As with most images, you should start with a Levels adjustment layer. Even if you don't use it, it can be helpful in evaluating the distribution of data within the image and for determining the location of critical highlights and shadows. In addition to the Levels adjustment layer, we will place a couple of Color Sampler points to initially measure and then monitor Hope's skin tone ratios. Here are some tips for performing this initial image evaluation quickly:

1. Type F7 to bring up the Info palette and place it near the image; you'll refer to it in a later step.

2. Option/Alt+click the half-black/half-white symbol located at the bottom of the Layers palette and select Levels from the menu that appears. Name this adjustment layer B&C for brightness and contrast. Note: Using the Option/Alt key when you create anything new allows you to name it on the fly—a good habit to acquire.

3. When the B&C Levels dialog box appears, press your Shift key—this will automatically activate your Color Sampler tool—and click to place two Color Sampler points on Hope's face (Figure 6.24). Place the Color Sampler points where the lighting is best/most direct (not great anywhere here) and at locations where there are no obvious blemishes. Remember that one of the big benefits of using adjustment layers is that you can perform and reperform as many edits as you like; all the edits are nondestructive until you flatten the image. (Note that you should flatten only a copy of your final image, leaving your layered PSD file in a fully editable state.)

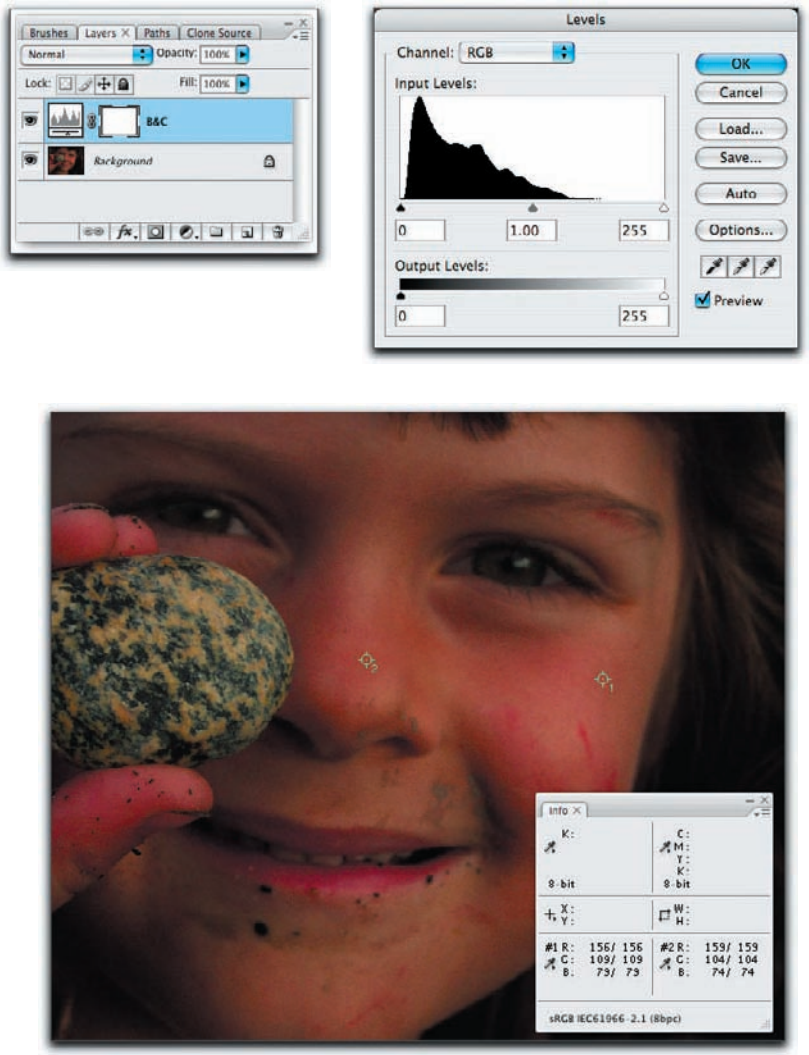


FIGURE 6.24
Brightness and contrast adjustment layer; Info palette with two color sampler points.

Color Sampler Tool

The Color Sampler tool is the Eyedropper tool on steroids. Using the Color Sampler tool allows you to measure and continuously and interactively monitor, as you make your corrections, up to four separate locations in an image. Clicking an image area with the Color Sampler places a sequentially numbered Color Sampler point location and creates a measurement reading at the bottom of the info palette. The Info palette will show both before and after readings.

When used with adjustment layers, you have the advantage of continuously updating, monitored, non-destructive editing. Color Sampler points can be quickly and easily placed and moved using your Shift key while you are working in a Levels, Curves, or other adjustment layer dialog. To help me easily keep track of which Color Sampler points are which, I routinely set my color sampler points sequentially in tonal order as follows : #1 Highlight, #2 Quartertone, #3 Midtone, #4 ¾ tone/shadow. I set my neutral points first and then other key points such as skin tone areas. Using this tonal sequence to set my Color Sampler points provides me with easy-to-remember points from one image to another.

4. In the Info palette, note the RGB values: point 1 = (156,109,79), point 2 = (159,104,74). These are acceptable RGB skin tone values (see the following sidebar), and although you can fine-tune these ratios to suit any specific look you want, these values do not require correction.

5. Now let's focus attention on the histogram in the Levels dialog box. We can clearly see the main source of the low brightness and contrast; nearly all of the image data in the histogram is positioned to the left of the center (midtone) slider, which places the median tonal value of the image somewhere below the three-quarter tone (Figure 6.25).

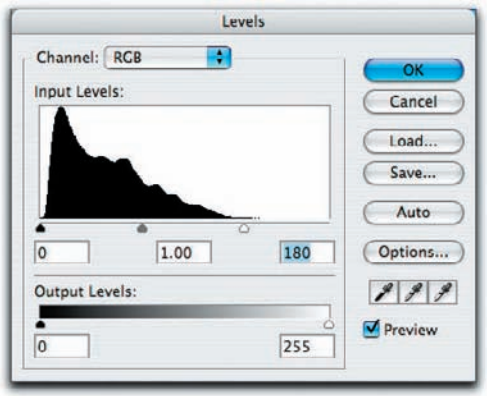


Figure 6.25
A histogram display of the tonal values, showing lack of highlight to midtone data. It also shows the adjustment of the highlight slider position which will redistribute the image data.

6. The quick adjustment, which would have a big impact on the overall brightness and contrast of this image, would be to reposition the slider on the right (the Master RGB channel highlight slider) to the left, until it lines up under the histogram directly where the beginning of the significant data in the image begins, the base of the bump in the histogram data peak. There are no print-critical highlights in this image, so making this qualitative adjustment is safe. Note: If the RGB ratios had not been acceptable, we would have made the

highlight adjustments on individual channels instead of the Master RGB channel. In addition, we might have added a Curves adjustment layer as well to adjust the RGB ratios in the midtone areas, if necessary. This is why it is critical to evaluate both the brightness and contrast and the color balance in an image so that we would know whether we could use the Master RGB channel highlight adjustment (as we did here), or whether we needed to perform separate channel adjustments and maybe add a Curves adjustment layer.

7. Time for some fine-tuning: In images such as this one, which has no critical highlight area to guide you (as evidenced by the blank area to the right of the histogram), I recommend dragging the highlight slider (the right slider under the histogram), until the lightest RGB values in the skin tone reach the mid 240s (about 5%). You can refer again to the Info palette to determine these values. Here the red values will be your guide. Note that a third Color Sampler point was placed on the lightest area of the skin to monitor the red value of this point (you can determine the lightest area of an image by Option/Alt+clicking the highlight slider as you pull it to the left with the Preview option enabled). In Figure 6.26, it finished up at 242. By focusing on 242 as your target value, you are guaranteeing that these areas will print with detail in all the colors, because they will be at or higher than the 5% (242) minimum printable highlight value.

FIGURE 6.26
Adjusted image with third, fine-tuned Color Sampler point

8. Using the Info palette, take one final look at the RGB values in the adjustment layer adjusted image. Note that the RGB value ratios still have R greater than G, which is in turn greater than B (R > G > B).

Now that we have enhanced Hope's image with better brightness and contrast, we are ready to retouch some of the blemishes.

Skin Tone Values

Unlike neutral grays or highlights, where RGB values are equal, skin tones are a bit more unruly. Skin tones are not supposed to be neutral (unless you are retouching images of dead people or Cardassians, of course), and there are certainly a wide range of skin tone types, from really red Scottish redheads, to green-tinted Asians, to dark-toned Africans.

But here is a simplifying concept: in nearly all skin, there's more red than green, and more green than blue. If a face has this pattern—R > G > B—it's going to look human. Now, of course the redheaded Scottish man will have greater separation of R and G than the green-tinted Asian woman, who will in turn likely have tighter B-to-G ratio than the African boy. And in darker tonal areas of the skin, the RGB ratios all tend to tighten up, so there is lots of room for fine-tuning! But the take-home message—and nearly always a good starting point for working with skin tones—is R > G > B. And remember it's all about relative, not absolute, values, because the absolutes change with the tonal value area.

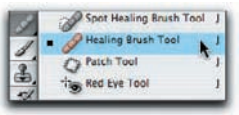
Retouching Linear Blemishes

For years the only tool we had for retouching linear blemishes was the Clone Stamp tool. And you will still find this tool useful on occasion, as you will see later in the "Removing Stray Hairs and Wrinkles" sidebar. One of the chronic problems with using the Clone Stamp tool for retouching was that it did not do a very good job protecting the luminance values and texture of the skin. The Healing Brush tools were designed with this as one of their key strengths.

Let's see just how good these tools are. As you saw in the earlier image, Hope has been delightedly playing in the dirt and has a very cute dirty face and hands. Hope's parents have decided to use this image as their current family portrait. They would like to clean up the image a bit—but not too much.

We will start by zooming in on some of the linear red blemishes on the (viewing) right side of her face. For linear blemishes, the tool of choice is the Healing Brush tool (Figure 6.27). The Healing Brush and the Spot Healing Brush look similar, but the Spot Healing Brush has a small selection area added to the end of its icon. You can access this tool through the Tools palette, or by pressing J until the Healing Brush is active.

FIGURE 6.27
Healing Brush tool



Through the Healing Brush options in the Options palette, we will configure the Healing Brush as follows:

Mode	Normal.
Source	Sampled.

Brush Size	Slightly larger than the width of the linear blemish, here = 25 pixels.
Hardness	Normally 100% (50% here) (remember, you can Control+click on the Mac or right-click anywhere in the image to display the Brushes Preset Picker and change this setting).

Typically a hard-edged brush is recommended and used when working with the Healing Brush. This is because the Healing Brush tools are automatically designed to soften/smooth edges. You may encounter circumstances, along high contrast edges or with inconsistent backgrounds, where using a hard-edged brush may create a recognizable halo or edge, in which case you can lower the hardness as we have here.

You have the choice of several Healing Brush blending modes (Figure 6.28). The other mode that I find useful for working with skin tones is the Luminance mode. If you are not achieving good results in Normal mode, try switching to Luminance mode. Normally, one of the key features of using the Healing Brush tools is the maintenance of the underlying tonal values, In most cases the Normal mode will provide good results, but in some cases, such as when there is a large difference in background luminance or tonal values, choosing Luminance may produce better results.

FIGURE 6.28
Healing Brush options

Before you begin your retouching, consider making a duplicate of the image layer and renaming it Retouch (Figure 6.29). This allows you to isolate your retouching adjustments to their own layer.

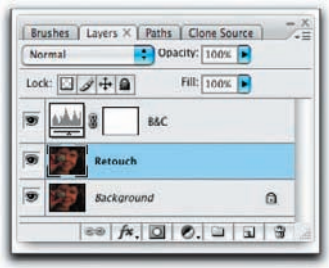


FIGURE 6.29
Retouch layer

Now, making sure we have activated the Retouch layer in the Layers palette (not the adjustment layer), Option/Alt+click a skin tone area that is similar to the skin tone surrounding the linear blemish. Doing so determines the Healing Brush clone source starting point (Figure 6.30). Then move the Healing Brush over one end of the blemish and drag along the length of it. After a brief discoloration, the blemish disappears. Repeat this process on some of the more-aggressive linear blemishes (Figure 6.31). Leave some of the less-obvious ones alone—they add character!

FIGURE 6.30
Healing start

FIGURE 6.31
Healing finish

Retouching Spot Blemishes

After the linear blemishes have been retouched, we can switch tools to the Spot Healing Brush. Once again, simply press the J key until the Spot Healing Brush is selected. We will configure the Spot Healing Brush as follows (Figure 6.32):

Mode	Normal.
Type	Proximity Match.
Brush Size	About 25% larger than the width of the blemish spot, here = 45 pixels.
Hardness	Start at 100% and reduce if necessary. Remember, you can Control+click on the Mac or right-click in the image to display the Brushes Preset Picker and change this setting on the fly.

FIGURE 6.32
Spot Healing Brush options bar

Having the feathered edge when using the Spot Healing Brush is especially important, because you do not have the option of setting multiple source points or using various opacities as you do with the Clone Stamp or standard Healing Brush tools.

To use the Spot Healing Brush, simply move the cursor over the top of the spot blemish and click (Figure 6.33). The Spot Healing Brush uses the surrounding pixel values to replace the spot blemish. Experiment with brushes of various sizes and hardness values to acquire a feel for how these alterations will affect the results of the spot healing. If the resulting healing does not have quite the right texture, try enabling the Create Texture radio button in the Type area of the Options palette.

FIGURE 6.33
Spot Healing Brush start

When you apply the Spot Healing Brush tool to some edge areas, such as next to the lips in this example, place the brush off center a bit, away from the color you want to avoid (in the example shown here, either the red lips or the normal skin tone, depending on your desired results). Another technique that I have found effective when spot healing next to high-contrast border areas is to use very small brushes and nibble away at the larger spot blemish from the side, away from the color you want to avoid. For spot blemishes that fall within both areas (such as blemishes that are partially on the red lips and partially on the normal skin in this example), you can nibble away with a small brush from both sides—first from one side and then the other (Figure 6.34). A little practice, and you will be a pro!

FIGURE 6.34
Spot Healing Brush finish

RED EYE REMOVAL TOOL VARIATION

The Red Eye Removal tool works in a similar fashion and is simpler to use than the Spot Healing Brush. When you select the Red Eye Removal tool, the cursor changes to display a simple crosshair. All you need to do is click the middle of the red-eye area. Most of the time the default values of 50% for both the Pupil size and Darken Amount work well. If the red-eye removal does not work with the default values, you can adjust them. Adjust the Pupil Size percentage if it is particularly large or small (in relationship to the whole iris). Alternatively, you could adjust the Darken amount if you are unhappy with the lightness of the adjusted pupil. However, in most cases you will never have to alter either value.

Retouching Area Blemishes

If your image contains areas that are blemished, and particularly if they are oddly shaped or diffused in nature, the Patch tool is your best bet. In the following example, the mud splotches above and below the lips are good candidates for retouching with the Patch tool. There are a couple of ways to use the Patch tool, but here is the method that I think is the most logical:

1. Zoom in on the muddy upper lip.

2. Select the Patch tool by pressing J. Notice its options appear in the Options palette.
3. Click the Destination radio button in the Options palette (Figure 6.35).

FIGURE 6.35
Patch tool options

4. Just as you would with the Lasso tool, draw a selection (Figure 6.36) around the area that you would like to use as a clone source. Pay attention to the shape of the destination area to which you will drag this Patch selection and try to match the shape or at least an edge shape to that of the destination area. You can use the Shift and Option/Alt keys to add or subtract from your Patch tool selection area, just as you can with a Lasso tool selection. Depending on the image you are working with, smaller Patch selections may work better than larger ones, especially when working with detailed images.

FIGURE 6.36
Patch tool selection

5. With the Patch tool still active, click anywhere inside the selected area (the marching ants) and drag over the area you would like to patch (Figure 6.37).

FIGURE 6.37
Patch tool selection applied

6. Repeat the preceding steps as many times as it takes to patch the areas you like. Photoshop blends the patched area for you, eliminating the need for feathering the selection (see Figure 6.38).

When you have completed all your retouching enhancements, you can follow up with some finishing touches such as sharpening to prepare your image for print (see Chapter 9, "Reducing Noise and Sharpening").

FIGURE 6.38
The retouched image

USING LAYERS TO CONTROL RETOUCHING

One of the advantages of performing a retouch on an element that has been isolated on a layer, and particularly when you are using a tool such as a Healing Brush tool, is that you can adjust the impact of the tool by adjusting the opacity of the layer on which you have performed the retouch. So if you completely remove a wrinkle with the healing brush, and would like to bring back part of the wrinkle, if you have performed this retouch on a layer you can lower the opacity of the layer to return as much of it as you like.

Detailed Retouching

One of the more subtle retouching skills you will acquire is wrinkle retouching. Sometimes you will simply want to remove them. But more often you will want to merely soften them in order to maintain a natural look. Wrinkle retouching uses many of the same tools and skills already discussed in this chapter, but applied in a more subtle and careful fashion. Let the following example be a good practice session.

Real World Scenario

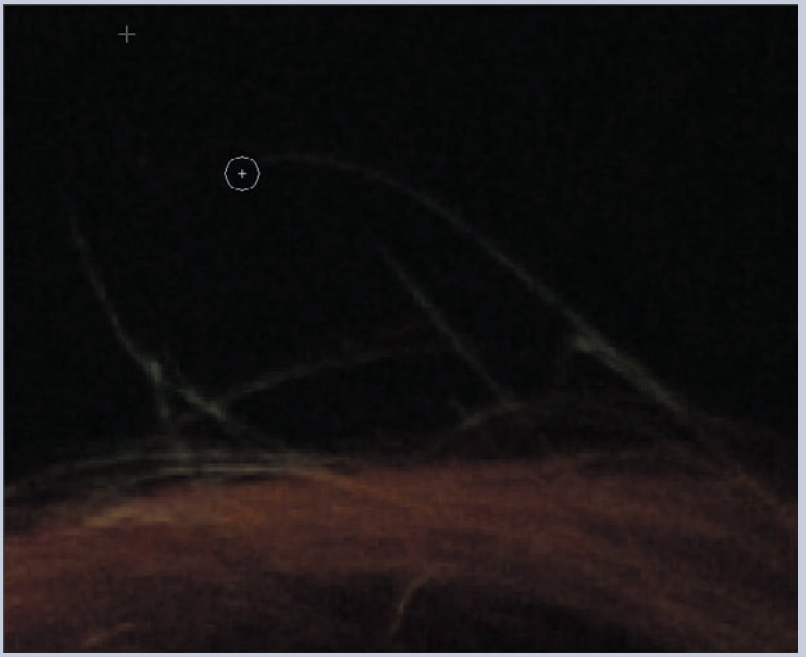
Removing Stray Hairs and Wrinkles

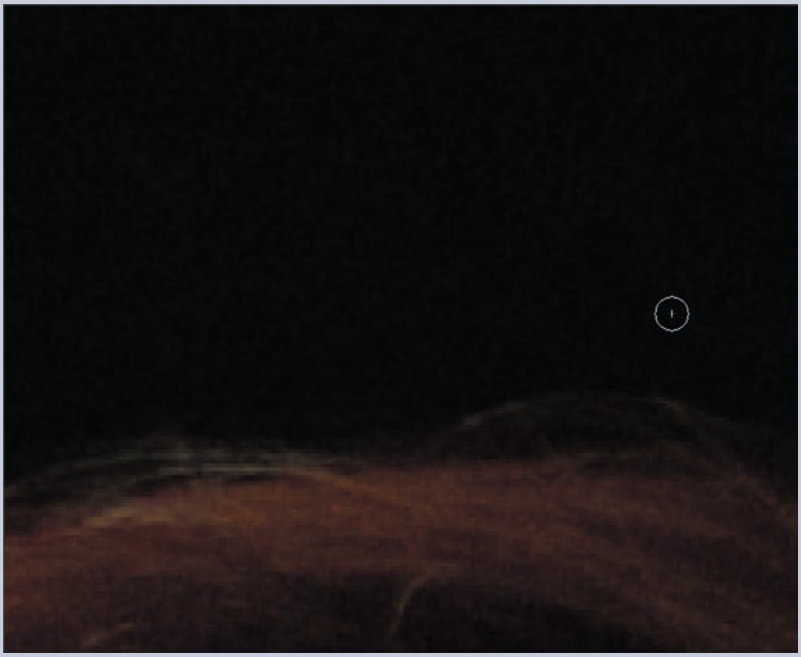
Some wrinkles, and other items such as stray hairs, need to be removed because they are distracting; others just need to be softened a bit. Here is an example of a portrait that can be improved by removing and softening some items. From the companion CD, open the image `Portrait_RGB` and copy it (Image ➢ Duplicate). A quick visual evaluation shows the following:

- There is a large wrinkle in the middle of the subject's forehead that is made very obvious by the side lighting. In general you will find that side lighting, while adding a nice dramatic flair to an image, can often exaggerate surface irregularities such as wrinkles.
- There is an obvious blemish, perhaps a birthmark, on her image-right cheek.
- There are stray hairs showing against the black background.

First, let's go after some of the stray hairs that need attention:

1. Zoom in on some stray hair highlighted against the black background.
2. Switch to the Clone Stamp tool. Select Normal mode, 75% Opacity, and Aligned. I suggest normal mode as we are using the background to remove the hair. I suggest using an opacity less than 100% to prevent the formation of any obvious clone lines. This may require more than one pass, but will reduce the likelihood of clone lines. The Aligned setting will allow your cloning source to move around the image with your cursor, and provides changed sampling points, which will help prevent repetitive clone source areas.
3. Set clone source points slightly up and away from the hair strands. This allows you to select a clone source area very similar to the area surrounding the hair strands, but offset just a bit to lessen the likelihood of an easy visual reference to the source.
4. Apply several brushstrokes across the stray hairs to remove them and perhaps change the clone source location on each pass. Using a reduced opacity and applying multiple strokes from several clone source locations will significantly reduce the likelihood of creating any visually obvious clone lines or source repetition. The extra time and care taken in applying these subtleties will help produce consistently better results.





5. Now let's take out some wrinkles or perhaps just soften them. Let's deal with removing them first. Zoom in on the large wrinkle located on the middle of her forehead.
6. If you have created earlier Adjustment layers activate the background or if you have created a duplicate image layer for retouching (a good idea!), activate that, in the Layers palette. Then activate the Healing Brush tool (keyboard shortcut J). Option/Alt+click above and to the left of the large wrinkle to set a source point. Do not select the Aligned check box, because you want to be able to take several strokes with the Healing Brush and return to the same source point on each stroke.
7. Click and drag the Healing Brush over the first third of the large wrinkle until the sample point approaches a rough area, and then release your mouse.
8. Drag again over the second third of the large wrinkle and release. Drag again over the last third of the large wrinkle and release. Note how the Healing Brush tool source returns to the same starting place each time. Applying multiple strokes helps create a smoother, more printable retouch area.

In addition, you can use this same technique to remove some of the stray hair that is hanging down from the bangs over the skin.

Removing all the wrinkles from the face would not look natural. But it might be nice to soften some of the harder wrinkles, especially in this harsh side-light that magnifies any surface irregularity, around the eyes

in particular. Here I suggest using the Clone Stamp tool at a small brush size and with the opacity greatly reduced:

1. Start out by zooming in on the image's left eye.
2. Switch to the Clone Stamp tool. Select Normal mode, 25% Opacity, and Aligned. Set the brush size to slightly smaller than the wrinkle width and set about 50% hardness.
3. Setting the clone source is critical here. When you look at the wrinkle in terms of tonal values, it becomes apparent that wrinkles are actually darkened areas of skin. Set the clone source on a skin tone area that is close to the darkened wrinkle.
4. With short strokes, carefully make several passes over the darkened wrinkles until they appear softer but are not removed. Repeat this on all the dark wrinkles.

Subtlety Is Key

Throughout this chapter, with all of these retouching repairs, we have paid special attention to making sure our edges were gradational. This was done by using reduced opacity, soft edges, and multiple brush strokes and or applying corrections, such as Healing Brush corrections, to retouch image elements placed on layers and then adjusting the opacity of the layer. All this attention to subtle detail ensures that our images not only will look good onscreen, but will also print well at high resolution, with no visible harsh edges or obvious swipe lines.

Geometric Enhancements

To finish up this chapter, let's cover a few useful common geometric enhancing skills. Three of the most common geometric image-enhancement challenges for print designers are cropping, straightening, and mitigating lens distortions. Let's have a look.

Cropping

Sometimes just a simple crop adjustment is all that is required to make a big improvement in your image. The Crop tool is actually capable of far more than simply performing a crop. You can predefine the final dimensions and linear resolution if you want to. Here is how it works:

1. Open an image. To follow along with these steps, open and duplicate the image `Winter View_RGB` (Figure 6.39) from the companion CD.

FIGURE 6.39
Winter view

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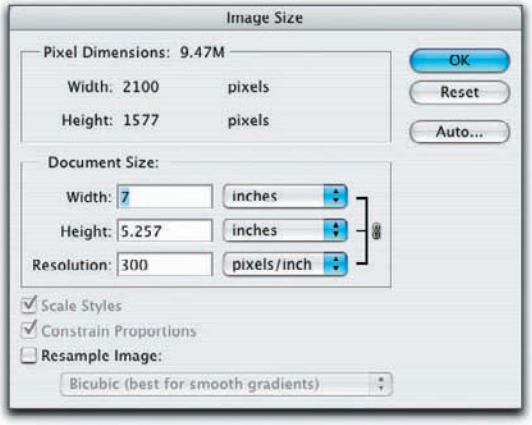
2. First prior to cropping, make sure that your original image contains enough linear resolution to support commercial printing (typically 300 ppi). You can check this via the Image Size dialog (Figure 6.40, Image ➢ Image Size.) At the same time you can set up that dialog to minimize the amount of interpolation that might occur during the cropping adjustment. To do this uncheck the Resample Image in the lower left corner. Then set either the Width or Height output dimensions to a value consistent with the dimension you are seeking (here 7″ × 5.3″). Then view the linear resolution to see if it falls within the 250–400ppi image that is acceptable for commercial printing. (Unchecking the Resample Image check box allows the linear resolution to change as you adjust the output dimensions, without interpolation.) If you need to adjust the Linear Resolution up, check the Resample Image checkbox, then choose Bicubic Smoother from the Resample Image menu, and adjust the linear resolution in 50ppi increments (the limit the impact of Photoshop's interpolation) until it is increased into the 300ppi range. You will likely want to follow up any resampling with sharpening, but wait until you have completed your cropping to apply any sharpening.

FIGURE 6.40
Image Size dialog



If you need to perform upsampling on a regular basis, you might consider acquiring a plug-in called Genuine Fractals from onOne Software, which uses a scaling and resampling algorithm superior to Photoshop's bicubic interpolation.

3. Select the Crop tool (press C to activate the tool).

4. Press Return/Enter to activate the Crop tool options in the Options palette. If the palette is already open, pressing Return/Enter will highlight the first (Width) data entry field in the Options palette. If not, press Return/Enter again to highlight this first data field. You can then press Tab or Shift+Tab to navigate through the Options palette.

5. Configure the Crop tool options as follows (Figure 6.41): Width 7″, Height 4″, and Resolution 300ppi. When you have completed your setup press Return/Enter again to return to the Crop tool itself.

FIGURE 6.41
Crop tool options

6. Now click and drag your Crop tool across the image. A resizable 7 × 4 proportional crop area appears as you drag (Figure 6.42). Click and drag any of the crop area handles to resize your crop area proportionally. Note: Before you click and drag, you can clear the values in Options palette fields by clicking the Clear button located on the right end of the palette.

FIGURE 6.42
Crop preview

7. When you are satisfied with your crop area, simply press Return/Enter to complete the crop (see Figure 6.43).

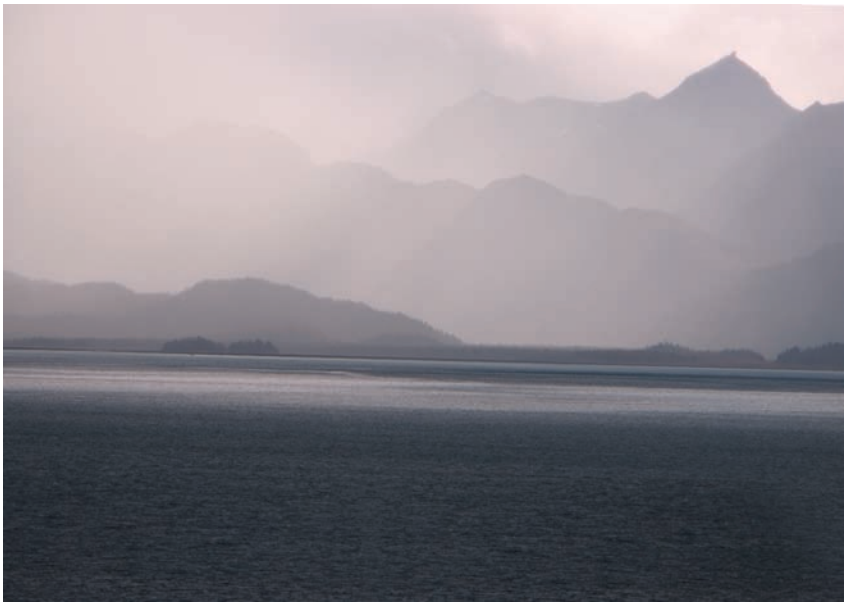
FIGURE 6.43
Completed crop

Straightening

Some images are just not shot straight. Sometimes the tilting is not really obvious, maybe only a few degrees, but is just enough to make the image look "off" and be visually distracting. Here is a simple way to accurately determine how much an image needs to be rotated and how to accomplish it quickly:

1. From the companion CD, open and duplicate the image `Kachemak_Mist`. This is a post storm view across Kachemak Bay, Alaska, as you can see in Figure 6.44. Note that the image looks like it is tilted slightly in the clockwise direction. It is subtle but it kind of makes you want to rotate your head to the right to straighten up the image.

FIGURE 6.44
Kachemak Mist slightly rotated



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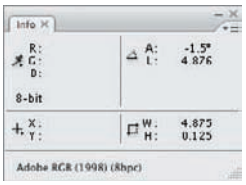
2. Locate a linear element in the image that you think should be horizontal; the shoreline will do nicely! In fact it is the linear elements like these that are supposed to be horizontal that provide your mind with the visual cues that the orientation of the image is not quite right.
3. Determine the amount of rotation necessary. Select the Ruler tool. It is in the same tool subset as the Eyedropper tools. Press the I key until the Ruler appears. Also press F8 to activate the Info palette.
4. With the Ruler tool active, click the left side of the shoreline. Now drag the Ruler to the right side of the shoreline (Figure 6.45).

FIGURE 6.45
Ruler tool drawn across horizontal linear element

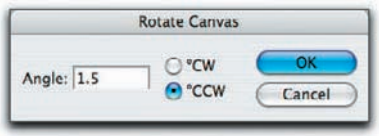
5. View the Info palette. On the right side an angle of –1.5° is recorded. This indicates a clockwise rotation of 1.5 degrees. This will require a 1.5° counterclockwise rotation to square this image up (Figure 6.46).

FIGURE 6.46
Ruler angle data in Info palette



6. To rotate this image, choose Image ➢ Rotate Canvas ➢ Arbitrary. The Rotate Canvas dialog box appears (see Figure 6.47).

FIGURE 6.47
Rotate Canvas dialog box



7. The value 1.5° should be automatically placed in the Angle field (if it does not…type it in); click the °CCW button. Then press Return/Enter to apply the rotation. Your image will rotate 1.5° counterclockwise. Because Photoshop can work with only rectangular pixels, it can also work with only rectangular images. So when an image like this one is rotated, Photoshop must add some pixels in the corners to fill in the blank areas created by the rotation. Figure 6.48 shows the rotated image with pixels added.

FIGURE 6.48
Rotated image with added pixels

8. To remove these extra pixels, you simply need to crop the image. Select the Crop tool (C). Specify the dimensions and/or linear resolution you would like for your final image in the Options palette as you did in the previous exercise. Simply click and drag the Crop tool within the image portion of the current file to define the final image you want (Figure 6.49). You will by necessity lose a portion of the image. Press Return/Enter to apply the crop (Figure 6.50).

FIGURE 6.49
Cropped image area

9. All this rotating and cropping has undoubtedly resulted in some resampling and softening of your image. So you might want to finish up this process by applying some sharpening (see Chapter 9).

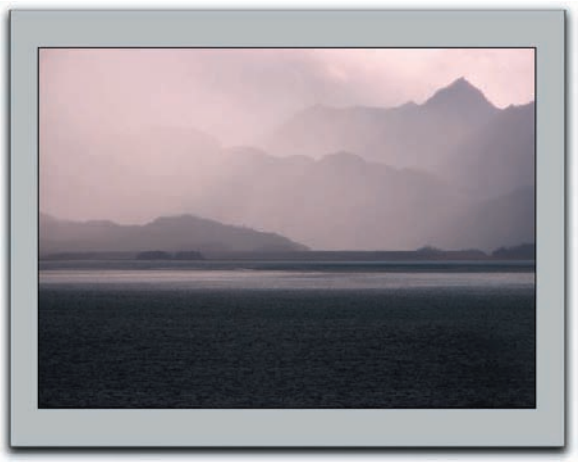


FIGURE 6.50
Rotated and cropped image

Removing Lens Distortion

For your final image-enhancement exercise, you will learn to remove a commonly occurring digital camera image malady: lens distortion. Images shot with a wide-angle lens often exhibit lens distortion. In the following example, you will remove some horizon warping that was applied to a landscape shot with a wide-angle digital camera lens:

1. From the companion CD, open and duplicate the image `Christochina_RGB`. This is an image of the 16,000′ Mt. Sanford volcano shot across the soon-to-be-frozen Christochina River in central Alaska. As you can see in Figure 6.51, the horizon is warped by the wide-angle view.

FIGURE 6.51
Warped image

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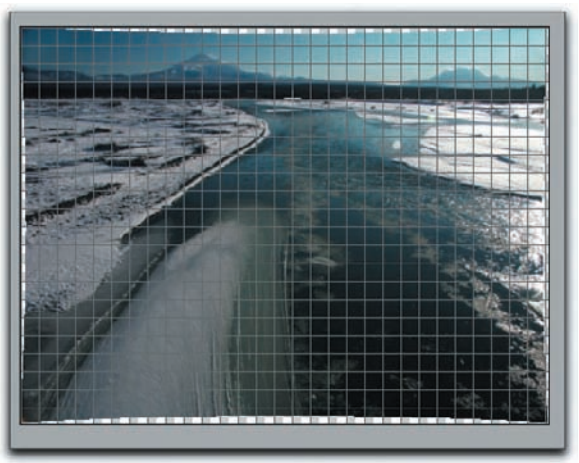
2. The remedy for this is simpler than you might think. Choose Filter ➢ Distort ➢ Lens Correction. The Lens Correction dialog box appears with an orthogonal set of grid lines laid over the image. There are a variety of lens variables to configure, including distortion, transformation, and chromatic aberration. You can even add and subtract vignetting if you like. For this correction, and for many such corrections, all you will need is the grid system and your eyes (Figure 6.52).

FIGURE 6.52
Image with lens distortion grid

3. Now identify a linear feature that you think should be horizontal; the base of the tree line in the distance is a good one here.
4. To remove the warping from the image, simply click the image near the tree line and drag the image down until the tree line is horizontal with one of the grid lines. You can hide and show the grid lines by selecting and deselecting the Show Grid check box just below the lower-right edge of the preview area. Click OK to apply the distortion correction (Figure 6.53).

FIGURE 6.53
Distortion correction



5. The distortion correction is applied to the image, and as with the canvas rotation you applied earlier, Photoshop must add some pixels to this image. The best way to deal with this is to include as much of the image as possible when cropping, without adding any surrounding white pixels (Figure 6.54).

FIGURE 6.54
Cropped unwarped image

6. There is one final step to complete this process. Using this lens distortion filter creates transparency in the image. Therefore, this image needs to be flattened to simplify it. Click the Layers palette menu and choose Flatten to remove the transparency (Figure 6.55).

FIGURE 6.55
Final Flattened unwarped image

The Bottom Line

Enhance Print Images by Using Photoshop's Cloning Tools Many images have defects, blemishes, or other unwanted contents that can be removed without evidence of their prior existence.

> **Master It** Determine which unwanted image elements you want to remove from your image. Then review the various tools you can use to remove these image elements including the Clone Stamp tool, the Patch tool, the two Healing tools, and your selection tools such as your lasso and Edge Refinement tools.

Clone between Images with the New Clone Source Palette Complex cloning from multiple sources can be nicely handled through the use of the Clone Source palette.

> **Master It** Identify the image into which you would like to clone one or more image segments. Also, identify up to five clone areas you would like to use. These clone areas can be in multiple images.

Retouch High-Resolution Photographs Retouching allows you to subtly alter the contents of an image. Retouching is commonly performed on people images, but these same techniques can be applied to many types of images. The key to all these types of adjustments is subtlety.

> **Master It** Identify all the retouch areas, such as skin blemishes, fly away hairs, and wrinkles you would like to modify.

Apply Geometric Enhancements (Crop, Straighten, and Distort) Geometric adjustments such as cropping, straightening, and removing distortion can improve the final version of an image. In each case you want to pay attention to the technical details of the image such as linear resolution and output dimension to make sure you are creating a print ready image, and minimizing interpolation. Cropping an image typically requires the most attention to these technical details.

> **Master It** Identify an image that you would like to crop. Determine the output dimensions you will need.

Chapter 7

Combining Image Layers

Layer opacity controls, layer blend modes, and layer masks are all important tools for graphic designers using Photoshop to create collage graphics for print materials. These types of graphics are most effective when used in brochures, advertisements, and magazine layouts. Layer opacity and blend modes allow you to combine image layers and create special effects, while masks allow you to conceal (or reveal) specific image areas—*and* they work nondestructively. Layer masks really are the ultimate creative safety net, giving you the ability to try out all of your ideas without permanently altering any pixels. You can use layer masks along with brushes, gradients, filters, and filled selections. You can also use clipping masks to place images inside text characters or other shapes.

In this chapter, you will learn to:

- Combine image layers by using layer opacity and blend modes
- Combine image layers by using gradient masks
- Combine image layers with editable text by using vector masks
- Combine image layers by using advanced blending options

Opacity and Blend Modes

In some of the example projects described in the previous chapters, I showed you how you can enhance your print images by using layer opacity and blend modes. Now let's take a much closer look at the Layers palette and explore how you can use it to adjust the opacity value for individual layers. This palette offers you incredible flexibility when creating graphics for print layouts. You can also use the Layers palette to change the way layers interact with each other by applying different blend modes. You can even create special effects by experimenting with various blend mode combinations.

Adjusting Layer Opacity

Every layer that you add to a composition shares a specific relationship with the other layers surrounding it in the Layers palette. One very straightforward way that you can blend layers together and control the way they interact is by adjusting each layer's opacity level.

To understand layer opacity, it helps to think of layers as the building blocks of your Photoshop composition. Painting with oil paint on a canvas is a good analogy. To paint your masterpiece, you must add paint to the canvas and blend colors together along the way. Doing so helps to unify the overall image. The same principles apply when you're creating a layered composition in Photoshop. Consider the layers that you're adding as your oil paint and the document window as your

canvas. You can use the Opacity control in the Layers palette to blend layers together and unify your image.

Located at the top of the Layers palette, the Opacity control allows you to make a selected layer completely or partly transparent. By default, all new layers added to a composition are set to 100% Opacity. Lowering the opacity value allows you to see through to the layers underneath in the stack (see Figure 7.1).

You can lower the opacity value of a selected layer in the palette either by entering a number in the Opacity field or by clicking the arrow to the right of the field and dragging the pop-up slider control to the left (see Figure 7.2).

FIGURE 7.1
This layered composite image was created by using gradient masks and brushwork (top). Reducing the opacity of the watch layer to 75% softens the image considerably (bottom). *www.photospin.com* ©*2006*

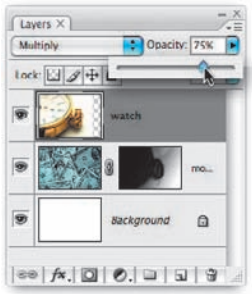
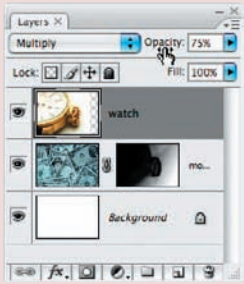


FIGURE 7.2
To reduce a selected layer's opacity by using the pop-up slider, click the arrow next to the opacity value and drag the bar to the left. The opacity change is displayed in the document window as you scroll.

SCRUBBING

You can also raise or lower dynamic field values in the Photoshop interface by using a technique called *scrubbing*. Start by hovering the cursor over the field label, such as Opacity in the Layers palette. When the cursor changes to display a hand with left/right arrows on either side of it, click and drag to the left (to decrease) or right (to increase). To adjust values in 10% increments, hold down the Shift key as you click and drag.



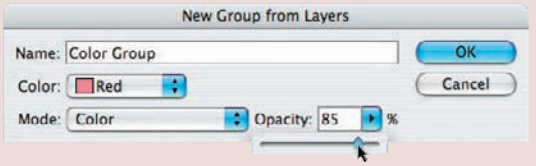
You can adjust the opacity value of a selected layer in 10% increments by using the number keys or the numeric keypad. To change the value by using this method, access any tool that does not have its own opacity settings in the Options palette, such as the Move tool, and then press 1 to apply a value of 10%, 2 for 20%, 3 for 30%, and so forth. Press 0 to apply a value of 100%. You can also type two numbers quickly in succession to apply a specific value (for example, typing 85 applies a value of 85%).

You can adjust the opacity value of only a single selected layer at a time. You cannot adjust the opacity value for multiple selected layers. You can adjust opacity values for multiple layers in a group by selecting the group layer (the folder in the Layers palette) and lowering its opacity value.

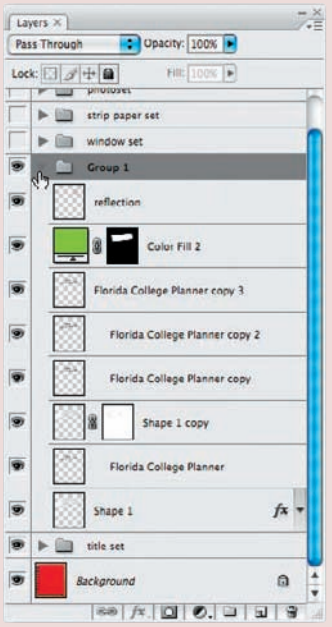
Layer Groups

The more layers you add to your file, the harder it becomes to manage them in the Layers palette. To keep them organized, you can place layers into folders known as *groups* (referred to as *layer sets* in pre-CS2 versions of Photoshop). To create a group, select the layers in the Layers palette and do one of the following:

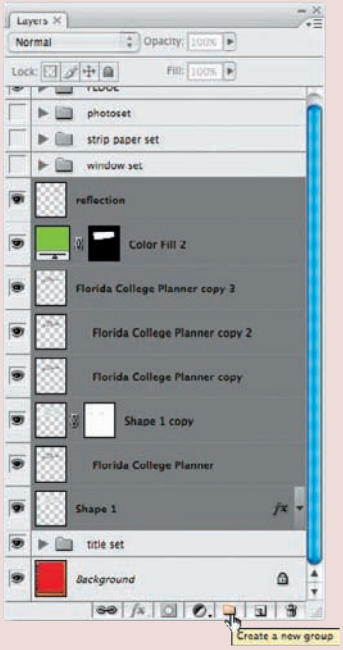
- Choose New Group From Layers from the Layers palette flyout menu. This option displays a dialog box that allows you to name the folder and apply a color to it. The dialog also allows you to apply an opacity value and blend mode to the entire group, which affects every layer placed in the folder.



- Choose Layer ➢ Group to place the layers in a folder. This grouping method does not give you the option to name or color the folder, or to apply any blend mode or opacity settings to the group. Instead, Photoshop places the layers into a numbered folder depending on how many groups you've added to the file (for example, Group 1, Group 2, and so forth).



- Shift+click the Create A New Group button at the bottom of the Layers palette. This method is the same as choosing Layer ➢ Group in that it doesn't offer you any options. The layers are simply placed into a numbered folder.



If you prefer, you can also create the folder first by applying the New Group command and then place layers into it afterward by dragging. To do so, choose New Group from the Layers palette flyout menu, or click the Create A New Group button at the bottom of the palette. Clicking the group button does not offer any additional options when creating the group, but choosing New Group does.

Applying Blend Modes

Blend modes give you further control over the way layers interact with each other in a composition. Try combining applied blend modes with layer opacity adjustments and masking, and you'll soon realize how much creative control you really have. By experimenting with various blend mode combinations, you can fine-tune specific areas of an image and even create special effects.

To apply a blend mode, first select a layer; then click the currently selected blend mode (or the arrows next to it) at the top of the Layers palette to reveal a pop-up menu. Highlight the desired blend mode from the menu and click to apply it. See Figure 7.3.

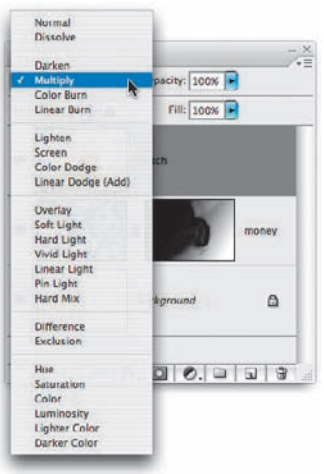


FIGURE 7.3
Apply a blend mode for further control over layer interaction in a composition

A Quick Tour of the Blend Modes

Photoshop offers 25 blend modes, so before you begin experimenting, it's a good idea to familiarize yourself with the various modes and how they work. Here's a brief description of what each blend mode does, using a car image placed over a sunset image as an example (in these shots, the car is the selected image layer, and the sunset is in the background layer below it).

Essentially, the blend modes control how—or whether—the color in the selected layer interacts with that of the layers below it. They all work by looking at pixel information for a given location in the two layers, but they differ in both the type of information they work with and the general effect they have on an image. Some compare luminosity (grayscale) values, where 0 is black, 128 is 50% gray, and 255 is white. Others compare RGB or HSB values. Likewise, some tend to darken or lighten the resulting image, whereas others tend to enhance or reduce contrast, or to make other changes. The main point to keep in mind about blend modes is that Multiply drops the whites, Screen drops the blacks, and Overlay blends everything. After you know this, you can determine which blend mode you want to apply, because most of the blend modes (except for Dissolve and the bottom photographic set—Hue, Saturation, Luminosity, and so forth) are based on these three.

Except where noted otherwise, the descriptions that follow assume that the selected layer is at 100% opacity.

Normal At 100% opacity, the selected layer's color does not blend with that of the layers beneath it (Figure 7.4).

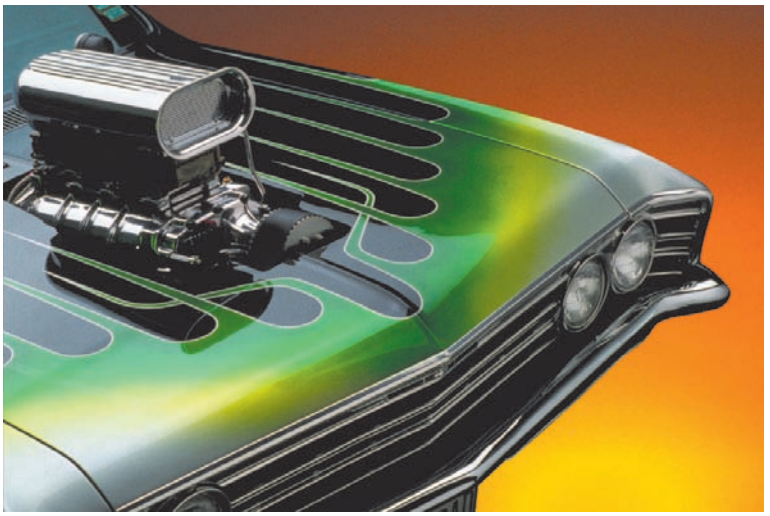


FIGURE 7.4
Normal
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Dissolve At less than 100% opacity, Dissolve displays some pixels of the selected layer at 100% opacity, but displays random pixels as completely transparent (Figure 7.5). As you lower the opacity value of the selected layer, more pixels are replaced by the lower layer's color.

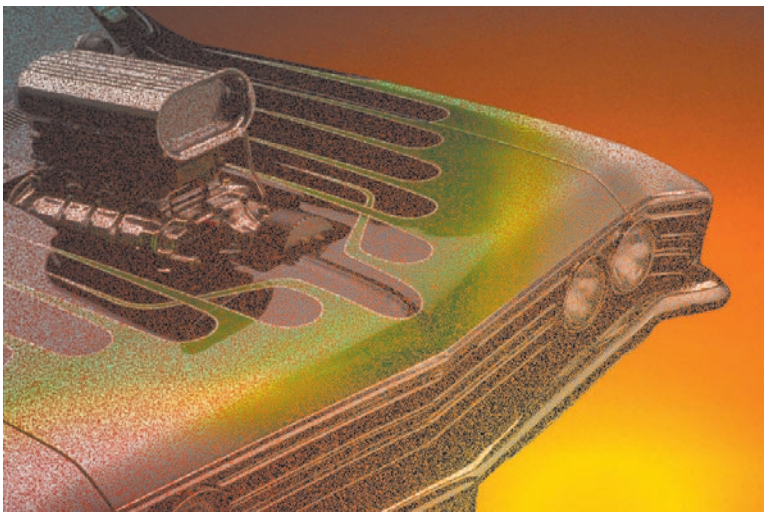


FIGURE 7.5
Dissolve

Darken Wherever the selected layer's color is lighter than that of the pixels in the layer underneath, the darker color is applied (Figure 7.6).

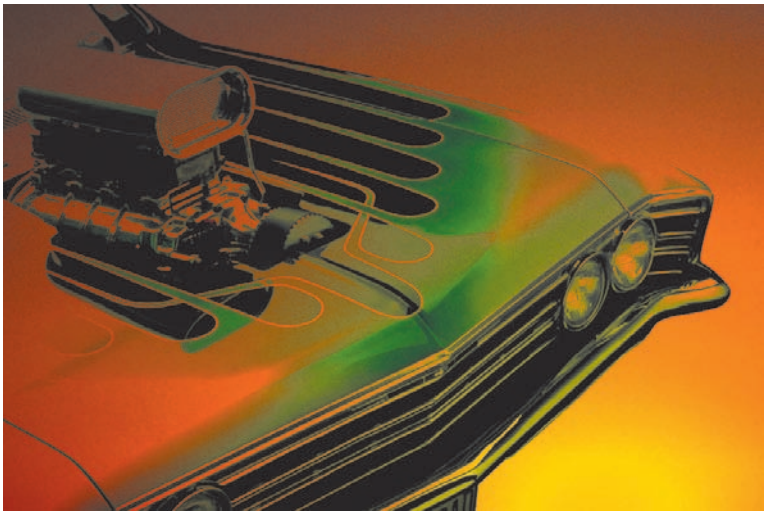


FIGURE 7.6
Darken

Multiply This option darkens the resulting image in proportion to the grayscale value of the selected layer; 25% gray makes the underlying layer 25% darker, 50% gray makes it 50% darker, and so on (Figure 7.7). Dark colors are forced to black, and white is not affected.

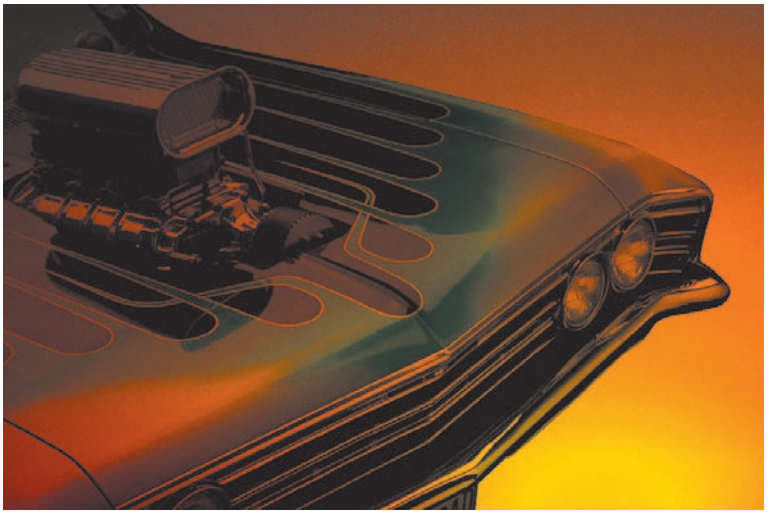
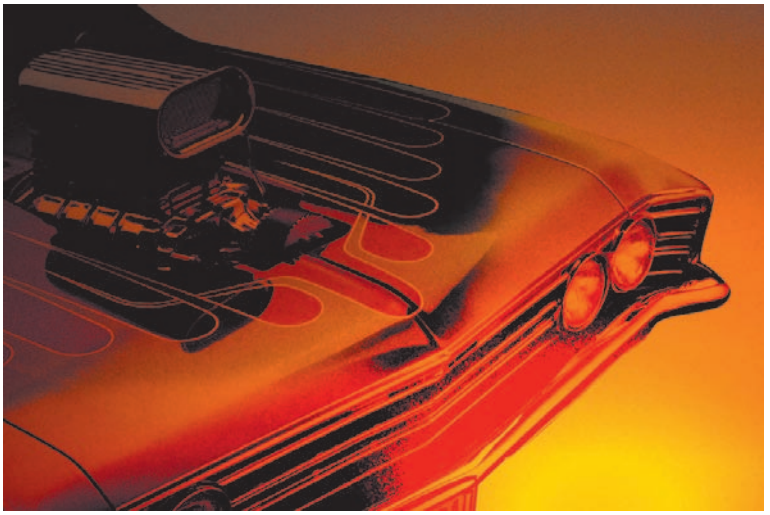


FIGURE 7.7
Multiply

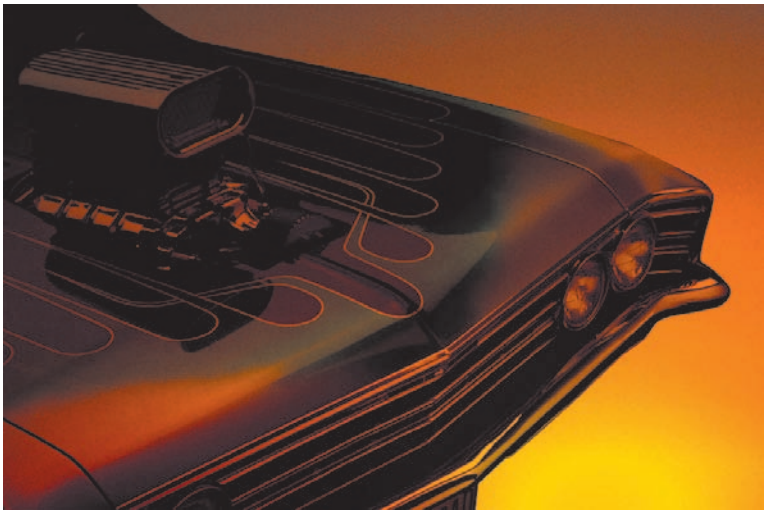
Color Burn This applies the hue of the pixels in the lower layer to those of the selected layer (Figure 7.8). Color Burn has a greater effect on darker colors.

FIGURE 7.8
Color Burn



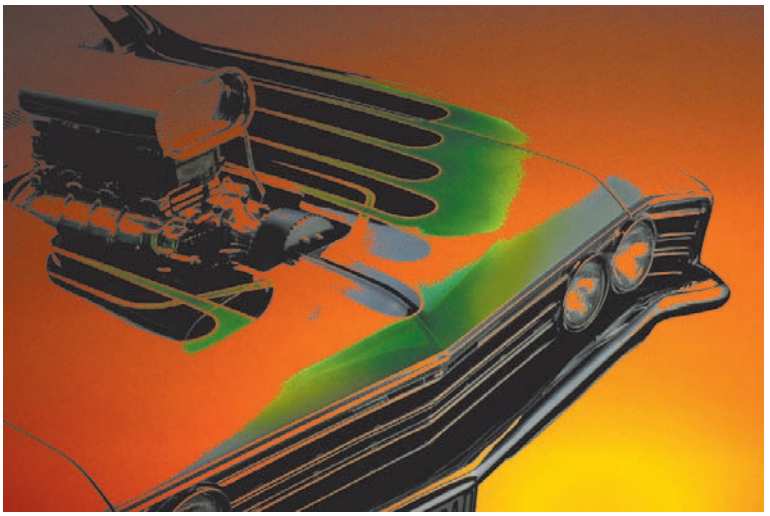
Linear Burn By applying the brightness of the selected layer, Linear Burn darkens the color of the underlying layer (Figure 7.9). White has no effect. The result is similar to Multiply but more intense.

FIGURE 7.9
Linear Burn



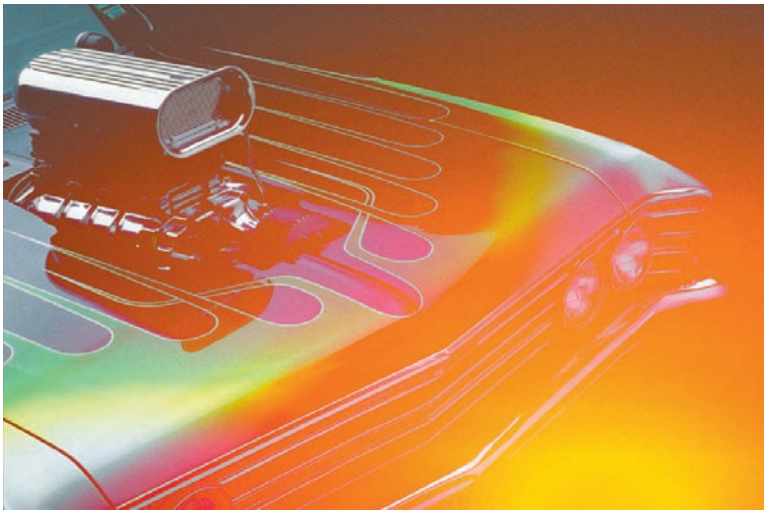
Darker Color Also new to CS3, the Darker Color blend mode works similarly to Darken mode (Figure 7.10). As with Lighter Color, Darker Color operates on all channels at once rather than per channel. When blending two colors with this mode—yes, you guessed it—the *darker color* is visible.

FIGURE 7.10
Darker Color



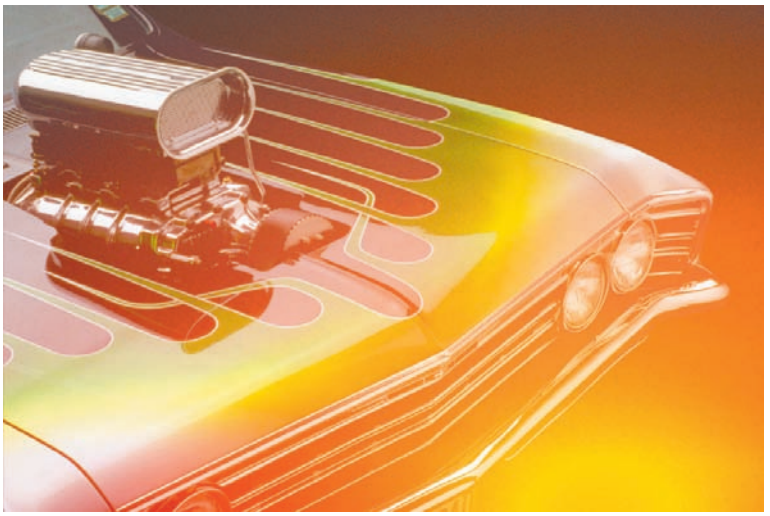
Lighten Wherever the selected layer's color is darker than the colors contained in the layers underneath, the lighter color is applied (Figure 7.11).

FIGURE 7.11
Lighten



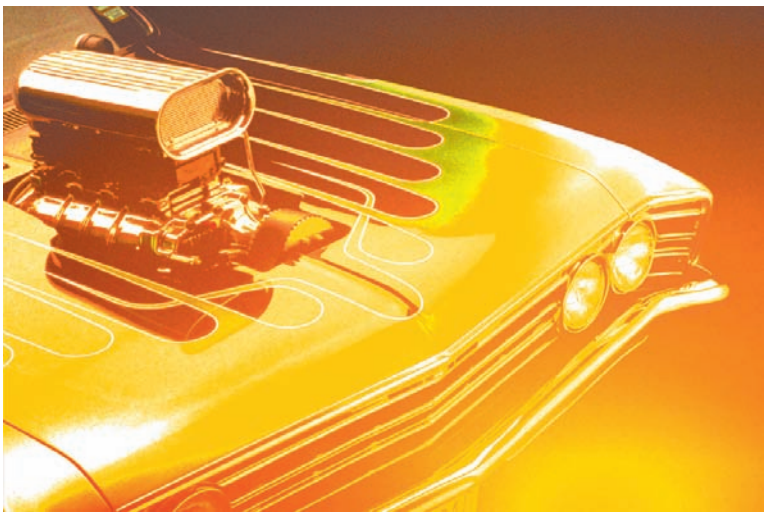
Screen The inverse of Multiply, this adds brightness (Figure 7.12). It lightens the resulting color in proportion to the luminosity of the selected layer. Screening lighter colors produces greater changes; black is not affected.

FIGURE 7.12
Screen



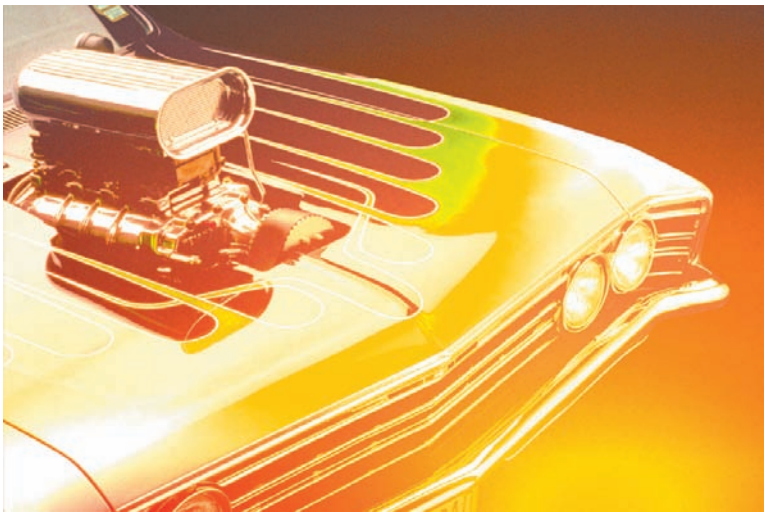
Color Dodge This option colorizes a selected layer's pixels by using the hue of the pixels in the layers underneath (Figure 7.13). Color Dodge has a greater effect on lighter colors than darker ones.

FIGURE 7.13
Color Dodge



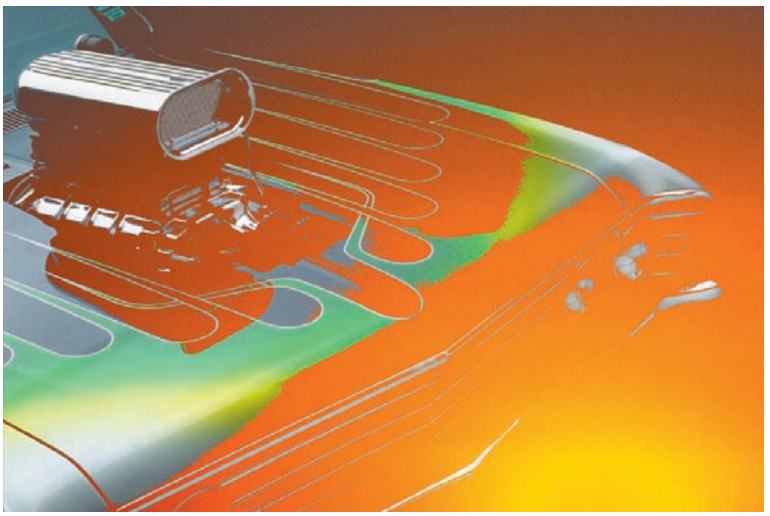
Linear Dodge (Add) The opposite of Linear Burn, Linear Dodge lightens the colors contained in the layers underneath by applying the brightness of the selected layer (Figure 7.14). Black has no effect.

FIGURE 7.14
Linear Dodge (Add)



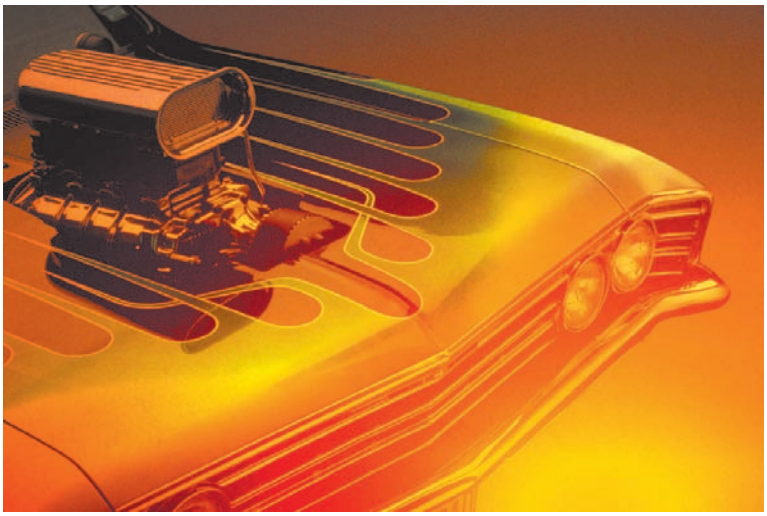
Lighter Color New to Photoshop CS3, the Lighter Color blend mode works similarly to Lighten mode (Figure 7.15). The difference between Lighter Color and Lighten is that Lighter Color operates on all channels at once rather than on a per channel basis. As its name suggests, the lighter color is visible when blending two colors with this mode.

FIGURE 7.15
Lighter Color



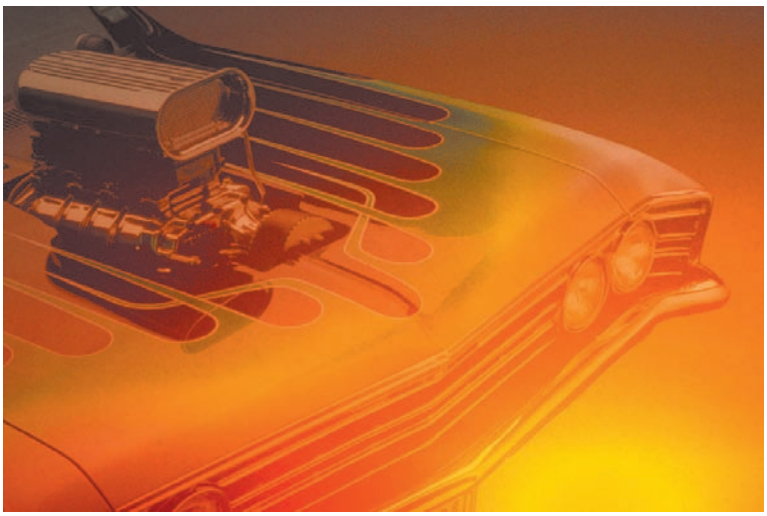
Overlay This option darkens (multiplies) or lightens (screens) a selected layer's color while preserving highlights and shadows (Figure 7.16). Contrasting colors produce greater changes; black, white, and 50% gray are not affected.

FIGURE 7.16
Overlay



Soft Light This option darkens (multiplies) or lightens (screens) a selected layer's color without preserving highlight and shadow values (Figure 7.17). All colors in the selected layer that are darker than 50% gray darken the colors contained in the layers underneath; colors lighter than 50% gray lighten them. Black, white, and 50% gray are not affected.

FIGURE 7.17
Soft Light



Hard Light This produces the same effect as Soft Light (see the earlier description), except with more contrast (Figure 7.18).

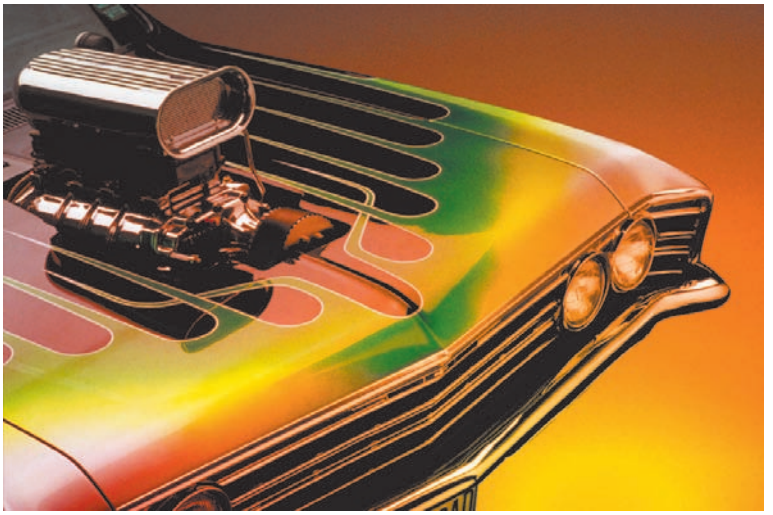


FIGURE 7.18
Hard Light

Vivid Light This reduces contrast in the lighter areas of the selected layer (below 50% gray) and increases contrast in the darker areas (above 50% gray) (Figure 7.19).

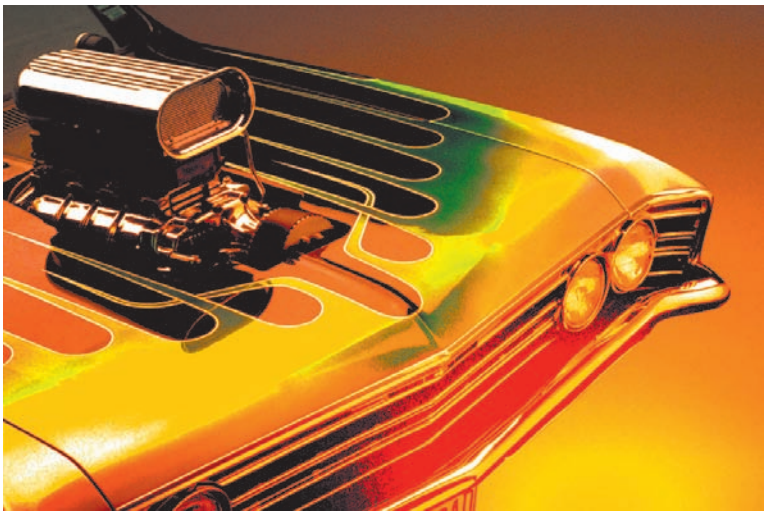


FIGURE 7.19
Vivid Light

Linear Light This decreases brightness in the lighter areas of the selected layer (below 50% gray) and increases brightness in the darker areas (above 50% gray) (Figure 7.20).

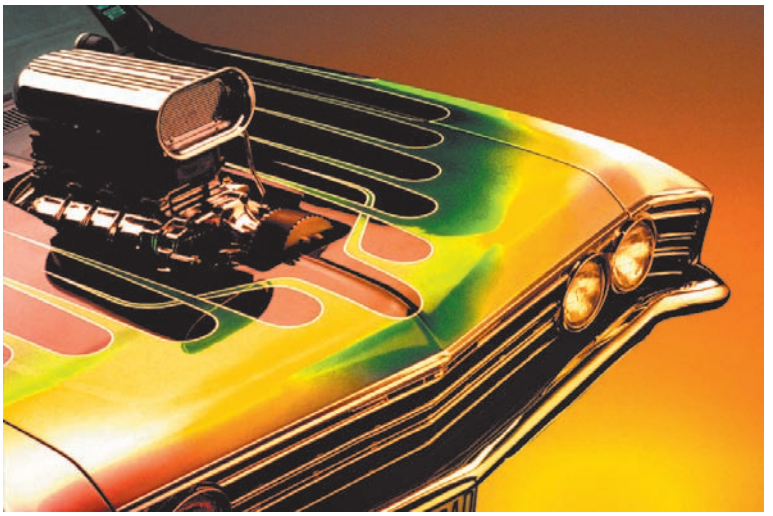


FIGURE 7.20
Linear Light

Pin Light The colors of the layers underneath are replaced by the selected layer's colors, based on the lightness and darkness values for both (Figure 7.21).

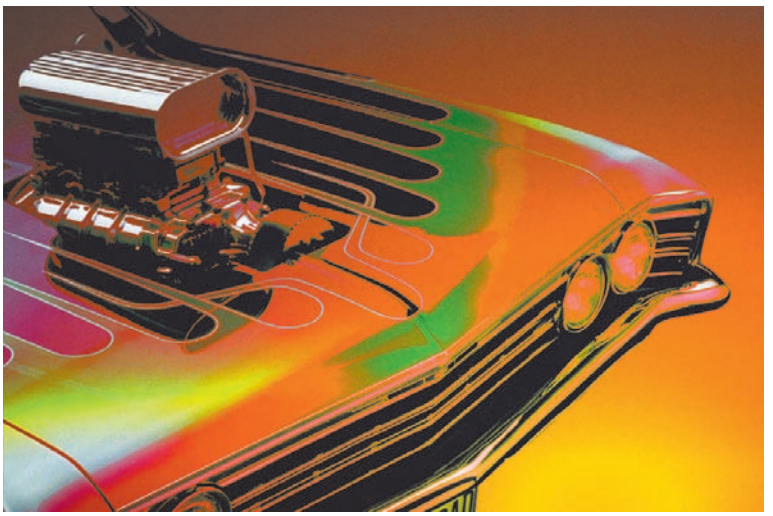


FIGURE 7.21
Pin Light

Hard Mix This applies a posterize effect based on the selected layer's opacity value. Higher values produce stronger results (Figure 7.22).

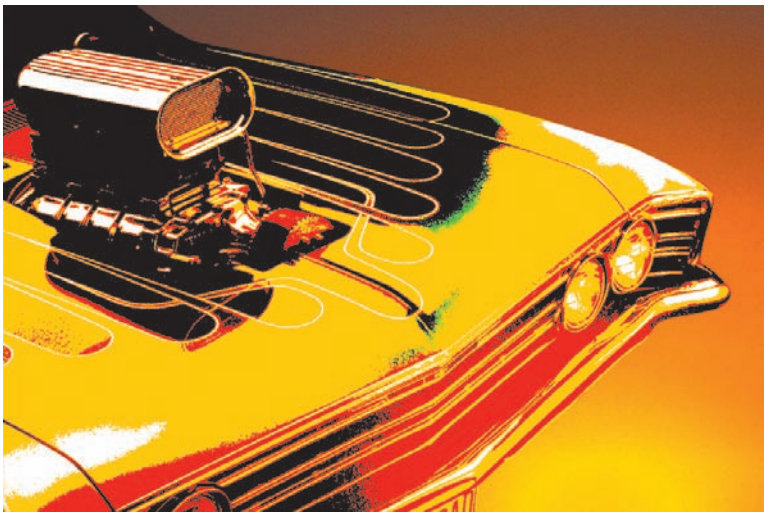


FIGURE 7.22
Hard Mix

Difference This applies the color that results when the selected layer's color and the colors underneath are subtracted from each other (Figure 7.23). White inverts the colors contained in the layers underneath; black has no effect.

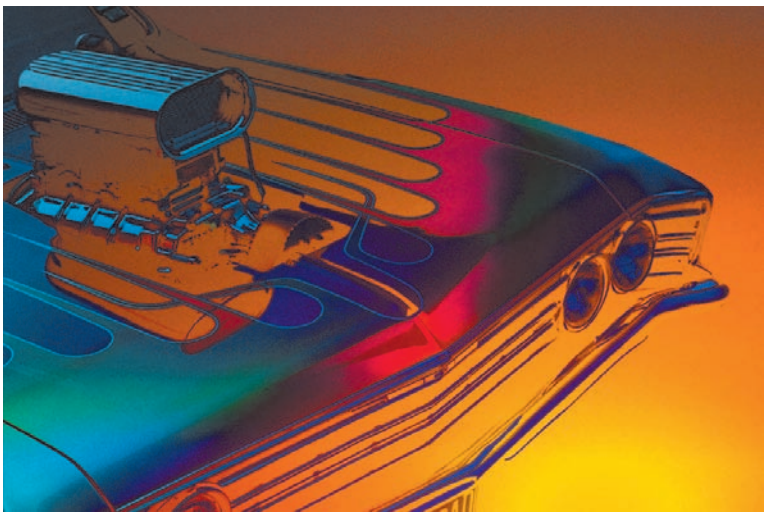
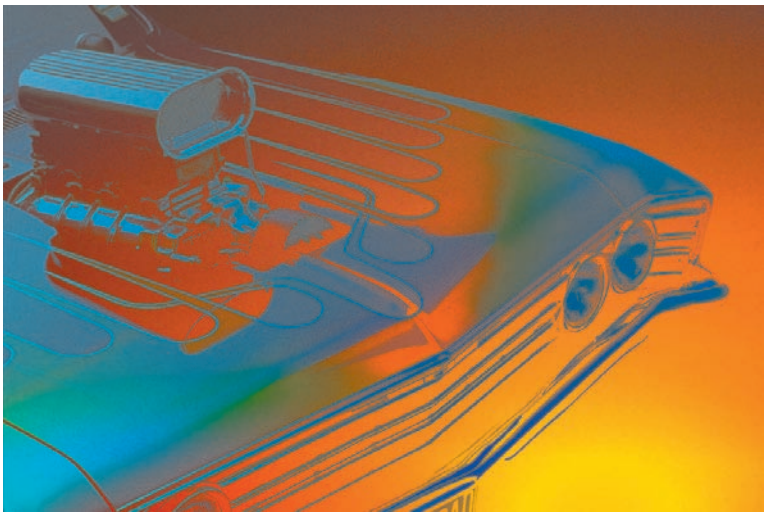


FIGURE 7.23
Difference

Exclusion This produces the same effect as Difference, but with less contrast (Figure 7.24).

FIGURE 7.24
Exclusion

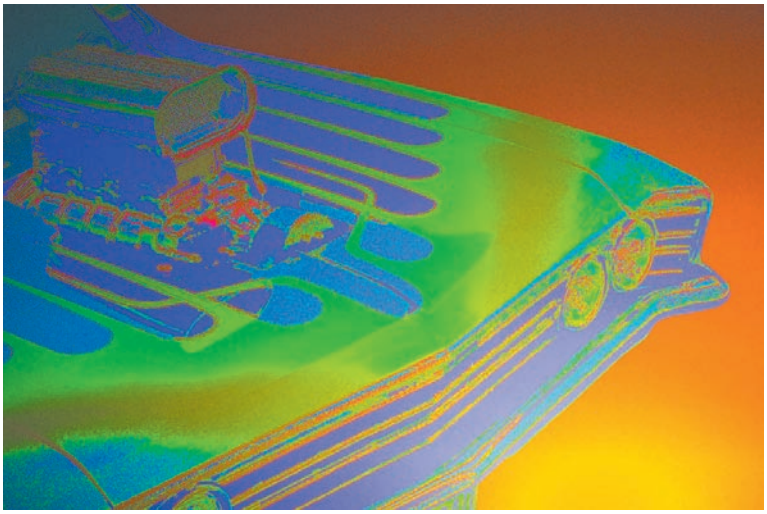


NAVIGATING THE BLEND MODES

After you've selected a layer, or any tool containing blend mode options, you can scroll through the blend mode list by pressing Shift+ (to go forward) and Shift– (to go backward). Note that whenever a tool that does not contain blend mode options is selected (such as the Move tool), Shift+ and Shift– change the blend mode for the currently selected layer.

Hue This applies the hue of the selected layer's color to the luminance and saturation of the colors contained in the layers underneath.

FIGURE 7.25
Hue



Saturation This applies the saturation of the selected layer's color to the luminance and hue of the colors contained in the layers underneath.

FIGURE 7.26
Saturation

Color This applies the hue and saturation of the selected layer's color to the luminance of the colors contained in the layers underneath.

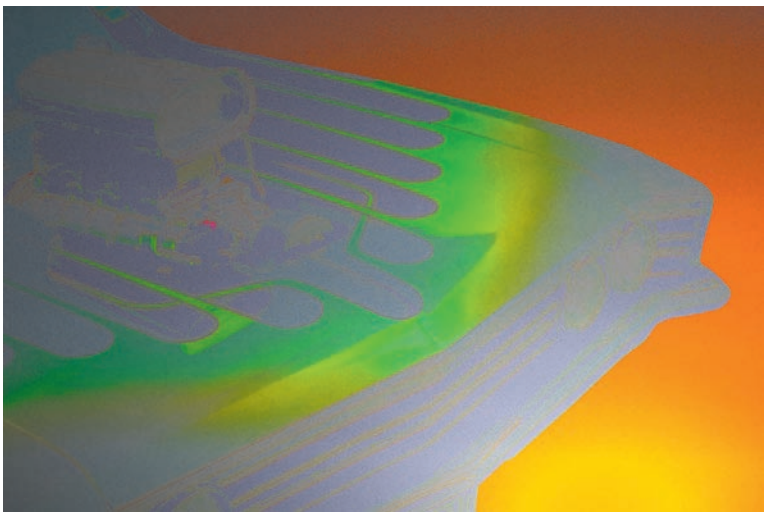
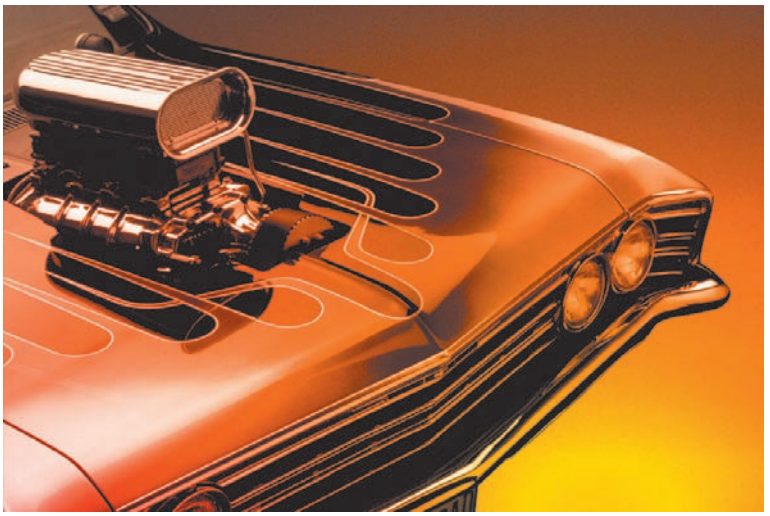


FIGURE 7.27
Color

Luminosity This applies the luminance of the selected layer's color to the hue and saturation of the colors contained in the layers underneath.

FIGURE 7.28
Luminosity



BLEND MODE TIPS

- A blend mode can be applied to only a single selected layer at a time, not to multiple selected layers.
- You can change the blend mode for multiple layers in a group by selecting the group layer (the folder in the Layers palette) and changing its blend mode.
- Blend modes can also be applied to adjustment layers.

What Is a Mask?

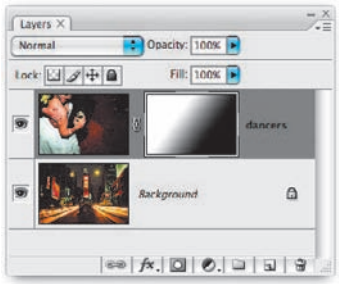
In the days before digital photography, a physical mask (such as a sheet of paper) was placed over unexposed photographic film in a darkroom to prevent stray or unwanted light from reaching specific areas of an image. This technique allowed the photographer to darken or completely hide a portion of the image.

In Photoshop, you can achieve the same effect by adding variations of gray to a *layer mask*. To apply a layer mask to an image layer, you must first select the layer, and then click the Layer Mask button at the bottom of the Layers palette (see Figure 7.29).

FIGURE 7.29
Select the layer and then click the Layer Mask button at the bottom of the palette.

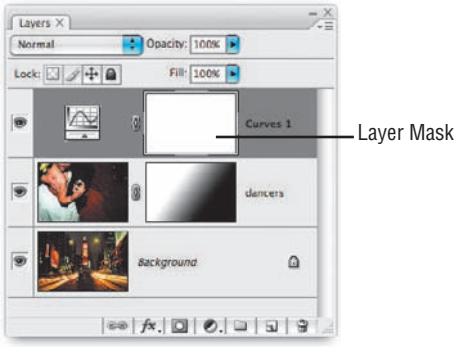
When you add a layer mask to a selected layer, Photoshop displays a new blank thumbnail next to the image thumbnail in the Layers palette. Any time you'd like to work in the mask, you must click on this thumbnail. When you first add the mask, it is selected automatically. Photoshop tells you whether you are working in the image area or in the mask by displaying an outline around either thumbnail in the Layers palette (see Figure 7.30). When you are through working in the mask, click on the image thumbnail or select a different layer altogether.

FIGURE 7.30
Photoshop places an outline around the thumbnail of the mask when it is selected. This indicates that you are working on the mask and not the image.



You can also use layer masks to control which areas of an image are affected by adjustment layer effects (such as Levels, Hue/Saturation, and so forth). As you've seen throughout the earlier chapters, Photoshop automatically creates a layer mask along with every adjustment layer that you add to a composition (see Figure 7.31).

FIGURE 7.31
By default, every adjustment layer that you add contains a companion pixel-based layer mask.



Black Conceals, White Reveals

When you're working with layer masks, it's important to understand that *black conceals* and *white reveals*. Any area of a layer mask containing 100% black *conceals* those portions of the image. When using layer masks with adjustment layers, this means that the layers below it in the Layers palette *are not* affected by the adjustment. Any area containing 100% white *reveals* those portions of the image, and when working with adjustment layers, the layers below *are* affected by the adjustment. Shades of gray in a layer mask *partially* conceal those areas of the image. When applied to adjustment layers, the layers below are affected in proportion to the grayscale value (see Figure 7.32).

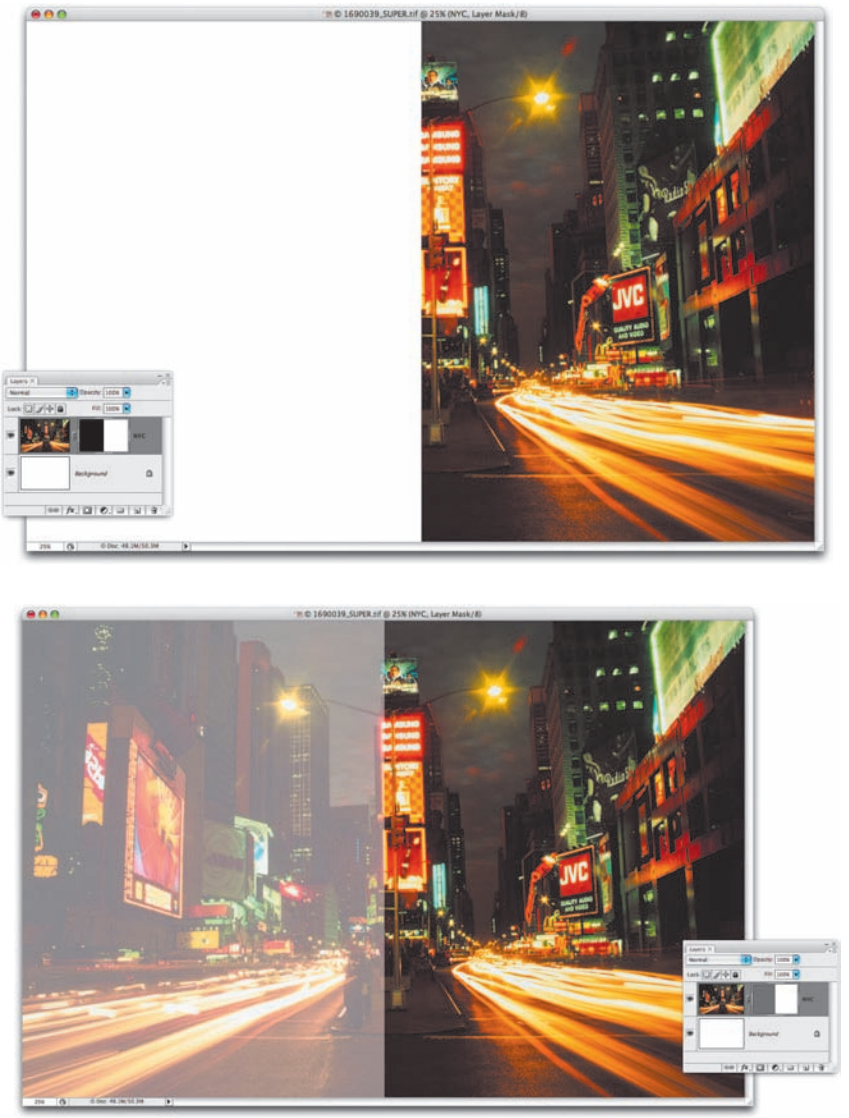


FIGURE 7.32
Black conceals a masked area; white reveals it (top). Shades of gray partially hide the adjustment (bottom).

What this means is that you can control which areas of your image are affected by an adjustment layer by painting in the companion layer mask with the Brush tool, or by filling selections in the mask with a color or gradient (see Figure 7.33). This is an extremely powerful and nondestructive way to enhance print images that you intend to use in a print design or layout. For more on painting in layer masks, see Chapter 3, "Working with Brushes."

FIGURE 7.33
These two image layers were combined nondestructively by using layer masks, gradients, and brushwork.

Blending with Masks and Groups

After you apply a layer mask, there are several techniques you can use to blend image layers together. You can hide specific areas of an image layer by filling selections in the mask with a color or gradient. It is also possible to paint in a layer mask with the Brush tool (for more on this technique, see Chapter 3). You can also feather or blur a selection in a layer mask (see the example in Chapter 2, "Making Good Selections"). Unlike adjusting layer opacity or applying layer blend modes, these are much more hands-on techniques for controlling how image layers interact with each other.

Gradient Blending with Layer Masks

By definition, a *gradient* is a continuous transition of colors. Gradients in Photoshop can contain a transition that blends from black to white, blends from one color to another, or contains an entire series of colors (see Figure 7.34). Gradients can also blend from opaque colors to transparent, a technique that is commonly used when using layer masks to blend images.

Before you begin learning how to apply gradients in layer masks, let's first take a close look at Photoshop's Gradient tool, the available gradient presets, and the Gradient Editor.

THE GRADIENT TOOL

The Gradient tool allows you to apply a chosen gradient by clicking and dragging in any direction (Figure 7.35). You can access the tool by clicking the Gradient tool icon in the Tools palette or by pressing G on your keyboard.

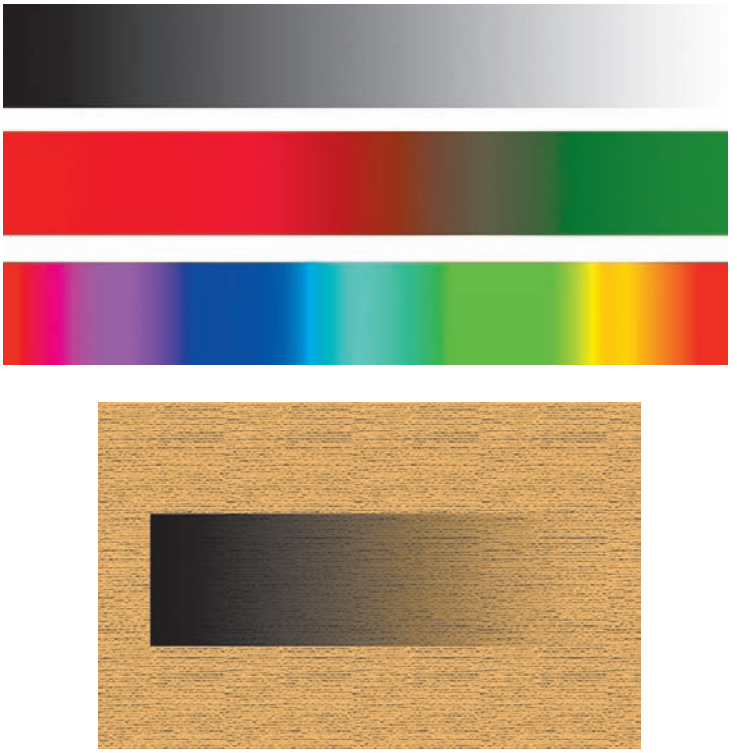


FIGURE 7.34
Gradients can blend from black to white, blend from one color to another, or contain an entire series of colors (top). Opacity gradients blend from one opacity level to another. These types of gradients allow you to see through them, as shown here (bottom).

FIGURE 7.35
The Gradient tool

To use the Gradient tool, select a layer or layer mask in the Layers palette, choose a preset gradient from the Gradient Picker in the Options palette, and click and drag in any direction. Your initial click point determines where the first color of the gradient begins, and the point where you release the mouse button determines where the last color of the gradient ends. To help you visualize the transition, Photoshop displays a crosshair icon at either end of the line drawn with the tool. The gradient appears in the image immediately after you release the mouse button (see Figure 7.36).

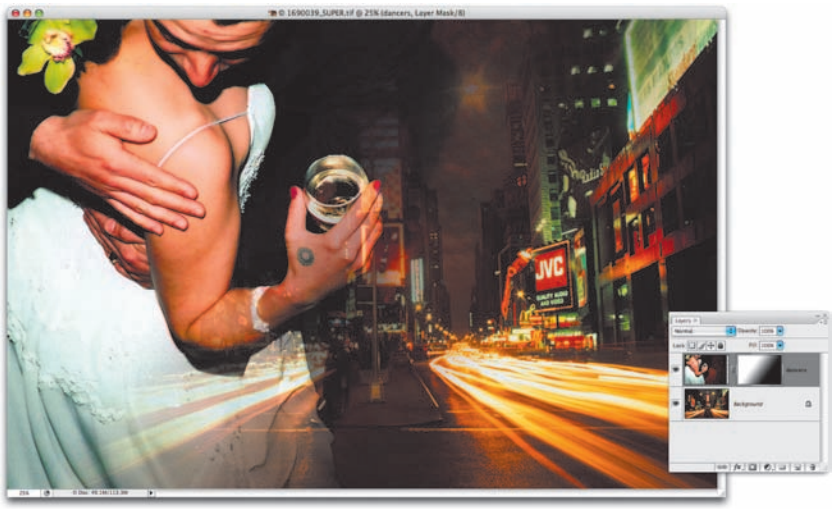


FIGURE 7.36
After you release the mouse, Photoshop applies the gradient. Shown here is a gradient applied to a layer mask, which creates the "see-through" effect.

CONSTRAIN THE GRADIENT ANGLE

Holding down Shift as you click and drag with the Gradient tool allows you to constrain the applied gradient to 45° angles.

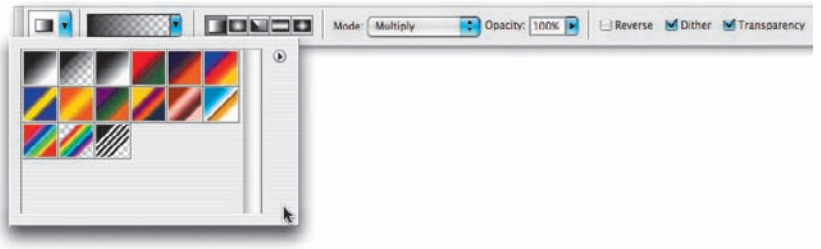
The Gradient tool also has its own set of options in the Options palette. You'll find a gradient preset menu, a Mode menu, an opacity setting, and several buttons for choosing a type of gradient to apply. Each gradient type is represented in the Options palette by a descriptive icon, including (from left to right) Linear, Radial, Angle, Reflected, and Diamond.

The Options palette also allows you to apply a specific blend mode to gradients applied with the gradient tool. To use this option, you must choose the blend mode from the Options palette Mode menu before clicking and dragging with the tool. The blend mode options available in the Options palette menu are the same ones you'll find in the Layers palette blend mode menu. Next to the blend mode list is an Opacity field, where you can enter an opacity value. You must enter this value before you apply the gradient with the tool.

Enabling the Reverse option switches the order of colors in the gradient. Enabling the Dither option creates a smoother blend between colors and prevents any banding (noticeable lines that appear in the gradient blend) from occurring. Enabling the Transparency option tells Photoshop to apply the gradient's transparency mask should the chosen gradient contain transparency. As a general rule, you should keep the Dither and Transparency options selected at all times.

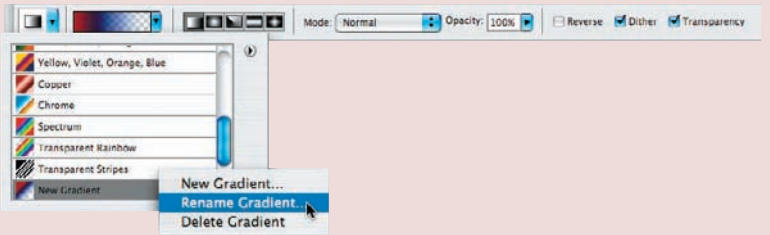
Gradient Presets

To access the available gradient presets, click the down arrow next to the currently selected gradient thumbnail in the Options palette. Doing so reveals the Gradient Picker. By default, the Gradient Picker displays the default set of gradients in a list of small thumbnails. With tool tips enabled, hovering over each thumbnail in the menu reveals the gradient preset name. You can resize the picker by clicking the bottom-right corner of the window and dragging out.



Renaming a Gradient

If you've made some adjustments to a gradient, it makes sense to rename it to something more descriptive that reflects those changes. You can rename a selected gradient by Control+clicking (Mac) or right-clicking with a two-button mouse and choosing Rename Gradient from the pop-up menu.



Enter a new name in the Gradient Name dialog box that appears and click OK.

To change the way the gradient presets are displayed, click the menu button to reveal the flyout window. Here you can choose to display the gradient presets as small or large thumbnails, in small or large list view, or as text only (see Figure 7.37).

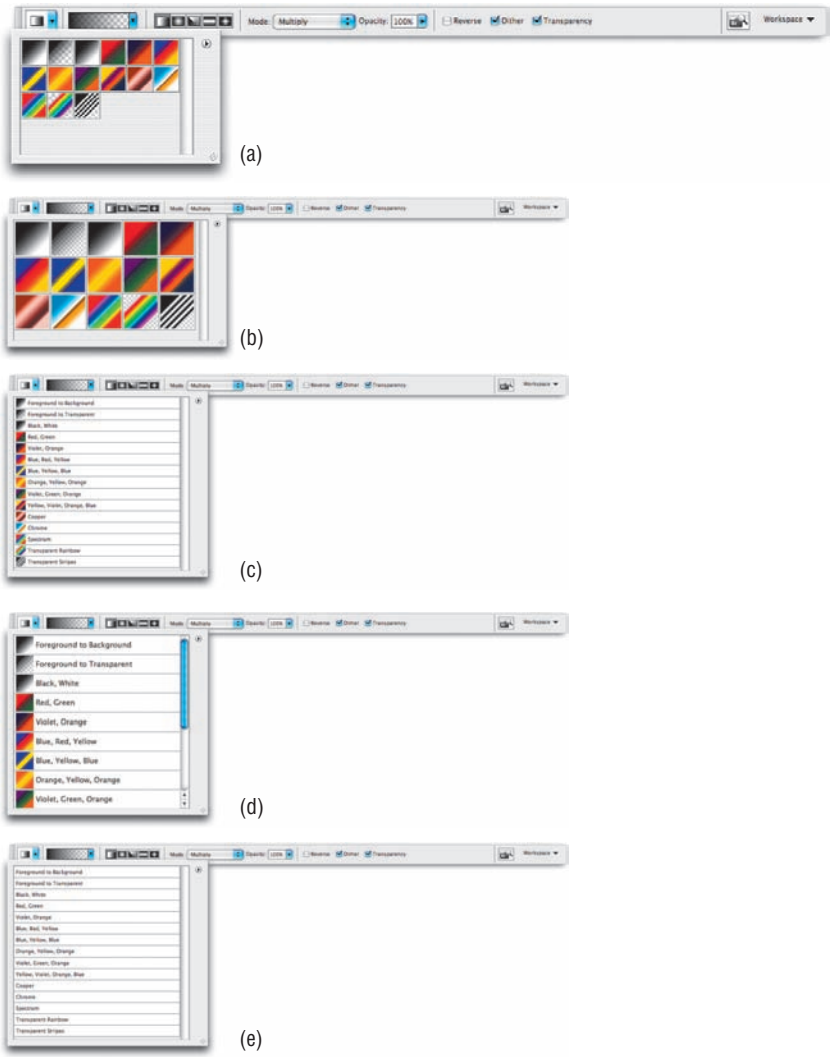


FIGURE 7.37
Modifying the Gradient Editor display of presets: (a) Small Thumbnail view, (b) Large Thumbnail view, (c) Small List view, (d) Large List view, (e) Text Only view

The bottom portion of the flyout menu contains a list of available gradient sets (also referred to as *libraries*). From this list you can choose which set of gradients to display in the menu window (see Figure 7.38). The sets are categorized by appearance, such as the Pastels set, which contains gradients using only pastel colors, or the Metals set, which contains gradients that emulate the color of reflected metal surfaces. Every time a new set is chosen, Photoshop gives you the option to replace the currently visible set in the menu list, or append it. Choose Append if you'd like to add the newly chosen gradients to the currently visible set in the Gradient Picker.

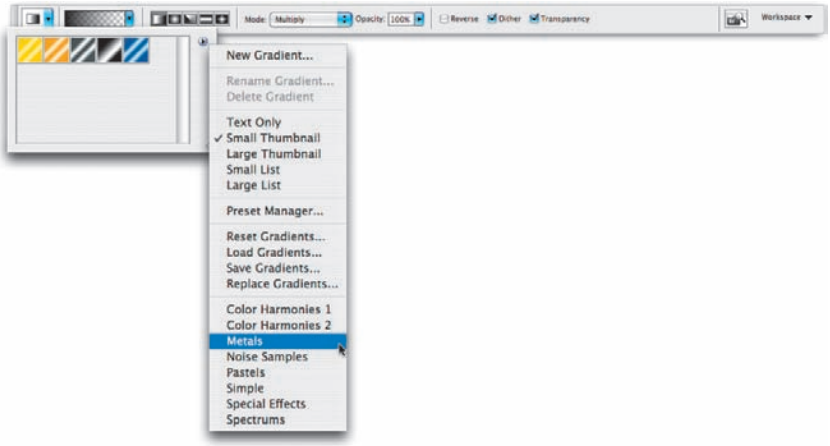


FIGURE 7.38
The flyout menu gives you access to all of the available gradient presets. Shown here is the Metals set.

You can delete a selected gradient by Control+clicking (Mac) or right-clicking with a two-button mouse and choosing Delete Gradient from the pop-up menu. Photoshop removes it from the list immediately.

Choosing Reset Gradients from the flyout menu can restore deleted gradients. When resetting, you have the option to save any changes made to the gradient settings. To do so, click Save in the warning dialog box that appears. Photoshop then displays the Save dialog box, where you can name the new set. The default file location on your system for custom presets is in the `Applications\Adobe Photoshop CS3\Presets\Gradients` (Mac) or `Program Files\Adobe\Photoshop CS3\Presets\Gradients` folder (Win). If you choose not to save, all changes made to the gradient presets, including any added new presets, will be lost. See Figure 7.39.

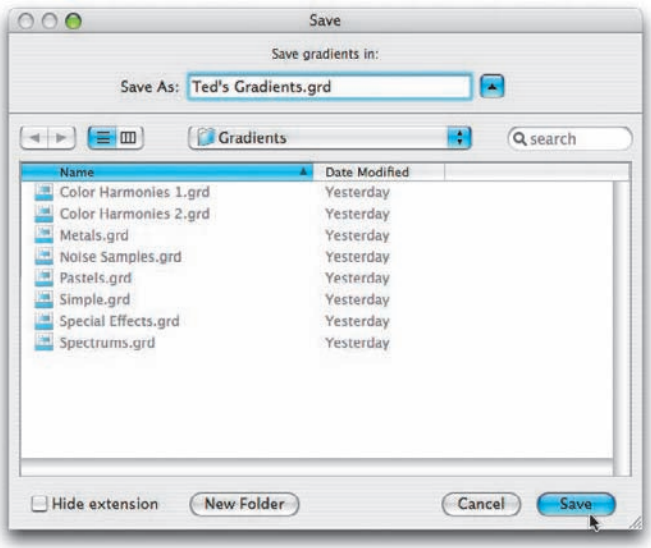


FIGURE 7.39
Choosing Reset Gradients can restore deleted gradients.

Navigating the Presets

Press Shift+comma to select the first preset in the category list. Press Shift+period to select the last preset in the list. To scroll forward through the list, press the period key. To scroll backward, press the comma key.

The Gradient Editor

To enable you to edit existing gradients or create new ones, Photoshop provides the Gradient Editor (see Figure 7.40). To access the editor, double-click the gradient thumbnail in the Options palette.

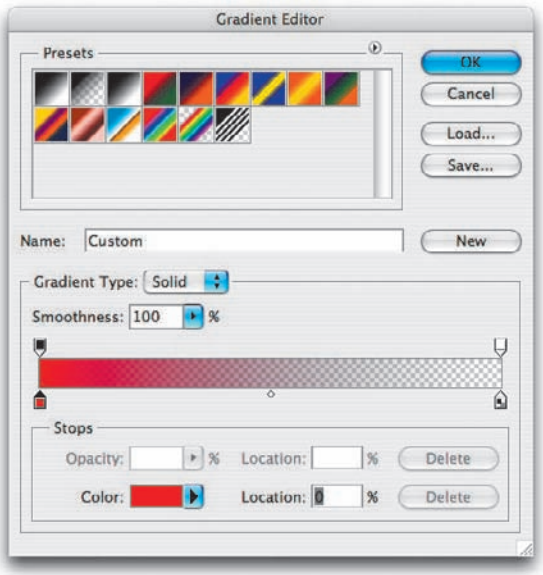


Figure 7.40
The Gradient Editor dialog box allows you to modify and create gradients.

To edit an existing gradient, select a preset from the menu at the top of the editor dialog box. You can load any of the available gradient sets in the window by clicking the Load button and choosing a different set from the Load dialog box that appears. Just as you can with the preset menu, you can also change the Editor's preset display. From the flyout menu, select small or large thumbnails, small or large list view, or text only (see Figure 7.41).

The controls located at the bottom of the editor dialog box allow you to change the color of a selected color stop. Click the color swatch to access the Color Picker and choose a new color (see Figure 7.42). Click the arrow next to the swatch to access a pop-up menu and apply the Foreground, Background, or User color.

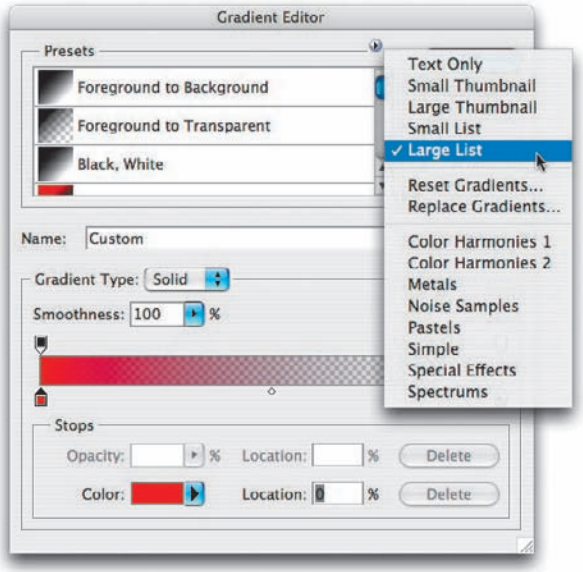


FIGURE 7.41
You can change the Gradient Editor preset display by choosing an option from the flyout menu.

After a preset is selected, you can alter the gradient blend by doing any of the following:

- Drag any of the color stops under the gradient bar to the left or right.
- Add color stops by clicking anywhere under the gradient bar.
- Delete a color from the gradient by dragging its color stop off the editor window, or select the color stop and then click the Delete button at the bottom of the dialog.

GRADIENT EDITOR TIPS

- You must always have at least two colors present in a traditional solid-color gradient.
- Opacity gradients can contain one or more opacity levels and colors.

Select any of the opacity stops above the gradient bar to apply different opacity values to the gradient blend. With an opacity stop selected, enter a new opacity value in the opacity field at the bottom of the dialog box (see Figure 7.43). You can add, delete, and reposition opacity stops by using the same methods you use with color stops.

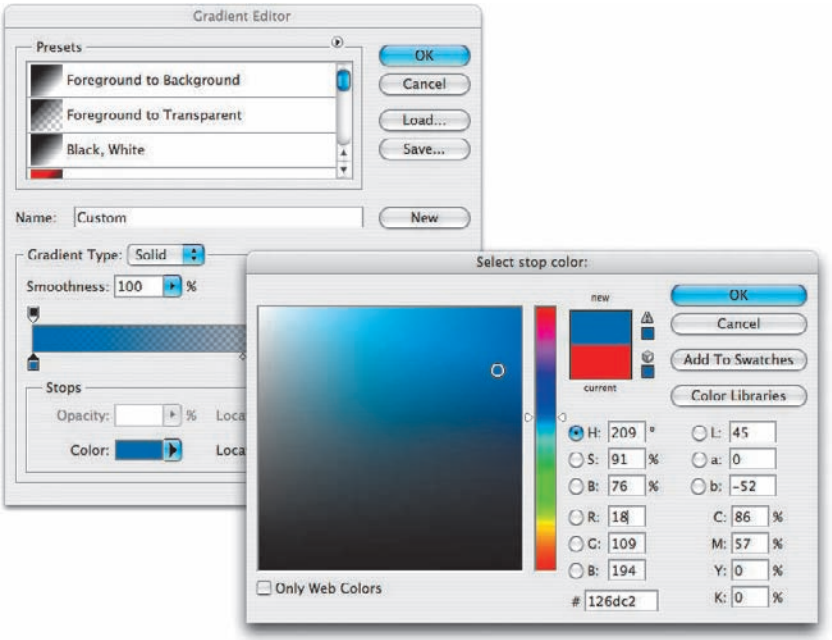


FIGURE 7.42
Use the Color Picker to change the color of a selected gradient color stop.

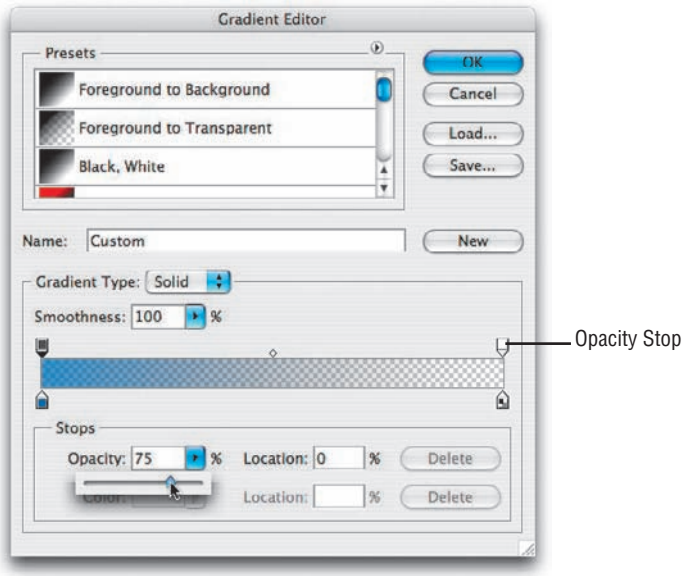


FIGURE 7.43
You can adjust the opacity of a gradient by selecting an opacity stop and entering a value in the field below.

After all of your adjustments have been made, enter a name for the gradient in the Name field, and click the New button to add your custom preset to the set. The new gradient preset appears at the end of the menu list.

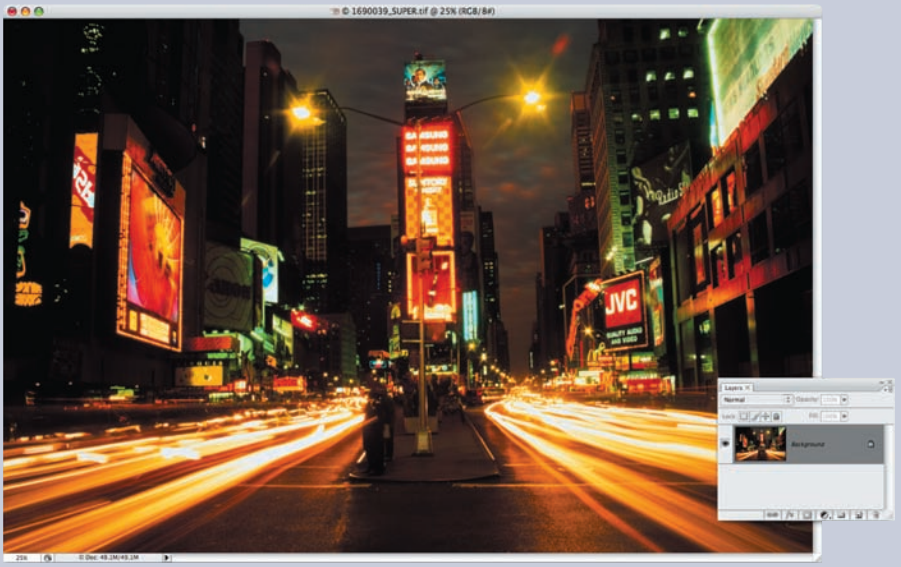
Real World Scenario

Gradient Blending with Layer Masks

Now that you've been introduced to the tools for working with gradients in Photoshop, let's take a look at how you can use them along with layer masks to combine image layers for a four-color print graphic.

This example shows how I used layer masks and gradients to blend image layers into a city nightlife montage to be used in a four-color travel guide or brochure. The Photospin images used in this example are available in the Chapter 7 folder on the companion CD.

1. I opened my background image (1690039_SUPER.TIF)—a night shot of Times Square in New York City.



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2. I opened a second image (the dancing couple—1740044_SUPER.TIF), and imported it via drag-and-drop with the Move tool. After it is imported, the image appears on its own layer above the Background layer (or base layer). I proceeded to use the Move tool to position the dancing couple on the left side of the image window. Finally, I renamed the layer *dancers*. The two images in this particular example happened to be of the same resolution and of a similar size, but in many cases combining images this way may require that you resize one of the images. When resizing is necessary, remember that images can only be scaled down and not scaled up, or else resolution will be lost (for a refresher on resolution, see Chapter 1, "Getting Started").

3. I added a layer mask to the imported image layer by clicking the Layer Mask button at the bottom of the Layers palette.

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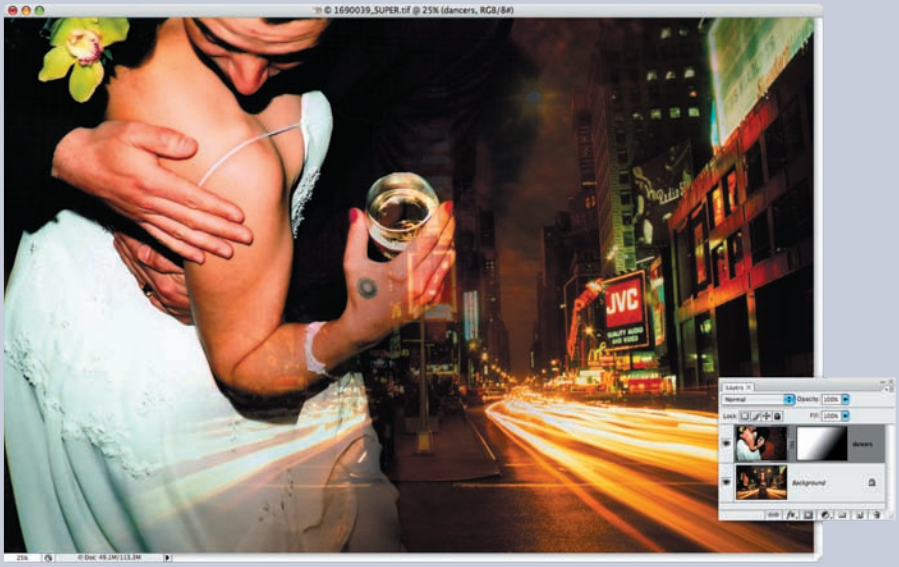
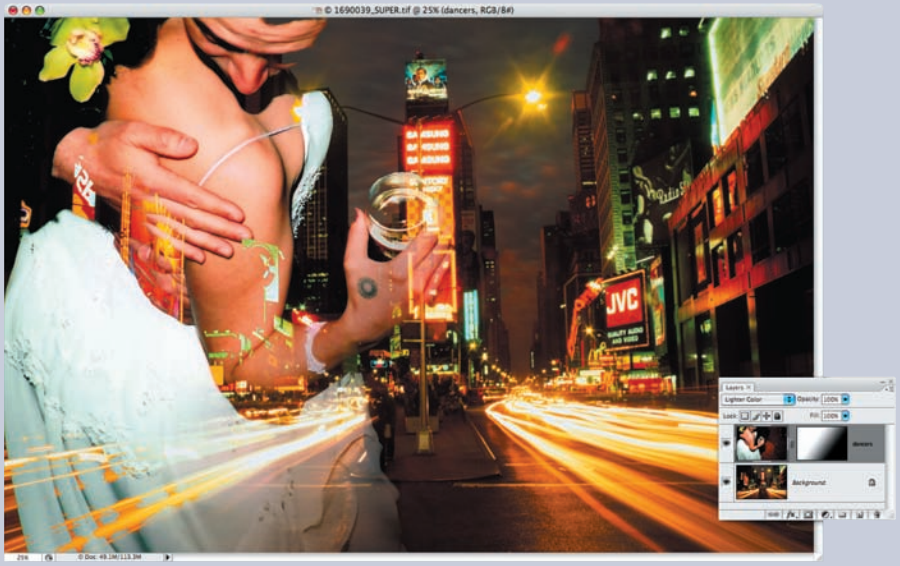
4. On my keyboard, I pressed the letter G to access the Gradient tool. In the Options palette, I selected the Foreground To Background preset from the Gradient Picker. I pressed D to reset the application default colors to white foreground and black background and then pressed X to reverse them, making black the foreground and white the background. I then went to the document window and drew a line from about an inch above the bottom-right corner of the image window to just above the wine glass that the dancing woman is holding in the photo.

5. The transparent gradient is immediately applied to the layer mask, which creates the see-through effect to the New York City image layer below.



6. To take it one step further, I changed the blend mode of the dancers layer to Lighter Color in order to create more of an advanced blending effect. This allowed the city lights in the layer underneath to poke through the image of the dancing couple.



Clipping Masks and Groups

You can also use the content of a layer to mask the layers above it in the Layers palette, creating what is known as a *clipping mask*. Adding several images to a clipping mask makes it a *clipping group* (see Figure 7.44). After the clipping mask or group is created, you can control how image layers blend together by painting in the base layer with the Brush tool, or by filling selections with a color or gradient. In Photoshop, clipping masks are necessary when creating print graphics that contain images cropped inside of text or shapes. Unlike opacity masks in Illustrator, you cannot place editable text or shapes inside a layer mask in Photoshop; therefore, clipping masks are your only option when creating this type of effect.

The following is a step-by-step example of how two images can be combined by using a traditional image layer clipping mask:

1. Create a new layer between the two image layers that you would like to mask. Be sure to give the layer a descriptive name. In this example, I chose to name the layer *screen mask*. See Figure 7.45.

2. Make a selection of the area you would like to mask by using any of the selection tools (see Chapter 2). In this example, clicking the eye icon next to the layer thumbnail turned off the visibility for the top image layer, and then the Quick Selection tool was used to select the screen area of the computer monitor. Refine Edge was used to fine-tune the selection edges. See Figure 7.46.

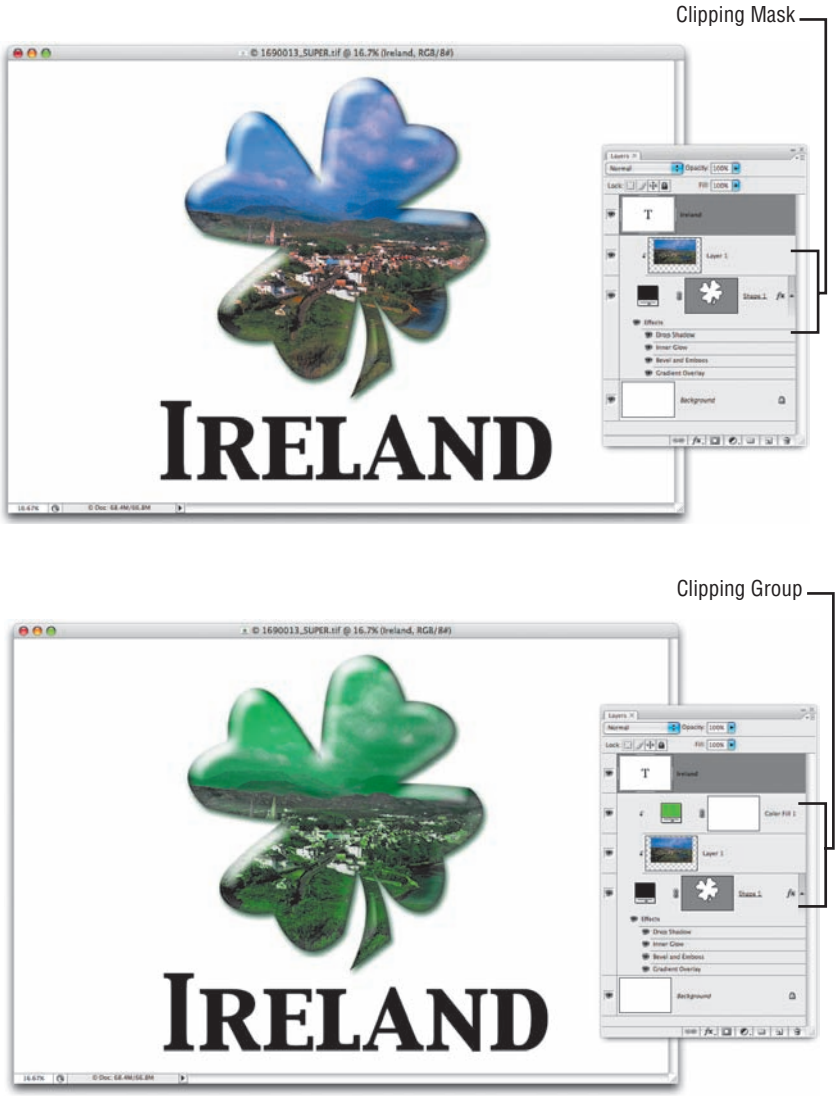


FIGURE 7.44
In a clipping mask (top), the black and gray areas mask out the contents of the grouped layer above. The clipping mask layer (aka the *base layer*) always appears with its name underlined. The thumbnail of the grouped layer above always appears indented. In a clipping group (bottom), the black and gray areas mask out the contents of multiple contiguous layers positioned directly above in the layer stack.

3. With the new layer still selected in the Layers palette, fill the selection with any color (white in this example). Note that when layers are grouped as described in the next step, the image above is cropped inside the filled area of the base layer below. All pixels in the surrounding transparent area of the base layer are concealed. Choose Select ➢ Deselect or press ⌘/Ctrl+D. See Figure 7.47.

4. Select the top image layer and turn its visibility back on. Create a clipping mask by using the Group command (Option+⌘ for Mac, or Alt+Ctrl+G for Win), or by Option/Alt+clicking between layers in the Layers palette. If necessary, reposition the grouped image inside the cropped area with the Move tool. See Figure 7.48.

FIGURE 7.45
Create a new layer between two image layers that you would like to mask.

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FIGURE 7.46
Make a selection of the area you would like to mask by using a selection tool.

FIGURE 7.47
Fill the selection with any color (white in this example).

FIGURE 7.48
Select the top image layer and turn its visibility back on.

Vector-Based Clipping Masks

One other way that you can create eye-catching graphics for use in your print layouts and designs is to group image layers to vector-based shape or type layers. Doing so allows you to place an image within editable text characters or inside a custom shape, where it automatically crops to fit the characters or shape. If the text or shape needs to change, Photoshop will change the image cropping to match. This is an ideal technique for creating graphics for colorful marketing materials such as printed advertisements, postcards, and brochures.

Type Masks

One of the most interesting and effective ways of making text and photos work together is to fill the characters of large display type with an image, as illustrated in Figure 7.49. In Photoshop, cropping an image inside editable text is easy. All you need to do is group the image layer to the type layer underneath it in the Layers palette. The great thing about type masks is that they allow you to edit the text, and thus change the crop area, at any time—without damaging any pixels!

Figure 7.49
Grouping an image layer to a type layer allows you to create unique combinations of text and art (top). You can edit the text and maintain the crop of the image inside the characters (bottom). Here the text was italicized.

Let's take a step-by-step look at how this is done. The Photospin image used in this example is available in the Chapter 7 folder on the companion CD (1690066_SUPER.TIF).

1. Open the image that you'd like to place inside some type. Select the Background layer by pressing ⌘/Ctrl+A, and then press ⌘/Ctrl+Shift+J to cut the image to a new layer above the Background. Enter a new name for the layer (*NYC* in this example). See Figure 7.50.

FIGURE 7.50
Open the image that you'd like to place inside some type.

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2. To begin creating your text, press T to access the Horizontal Type tool. In the tool's Options palette, select a bold face font with characters that are thick enough for an image placed within them to be recognizable, as well as a large point size and an alignment option. In the example, I've chosen Cooper Std Black on the Macintosh platform, 384 pt, centered. Click in the center of the document window and type your text (*I [space] NY* in the example). As soon as you begin typing, a new text layer is added to the document above the image layer. See Figure 7.51.

3. Click the Move tool icon in the Tools palette and position the text accordingly. Notice that the name of the type layer in the Layers palette automatically displays what was typed. Press ⌘/Ctrl+[(left bracket) to position the type layer underneath the image layer. The type will disappear in the document window because the opaque image layer above it in the palette now covers it up. See Figure 7.52.

4. Create a group by Option/Alt+clicking between the type layer and the image layer above it in the Layers palette. The image will be automatically cropped inside the text characters. If you'd like to adjust which part of the image is visible, you can select the image layer and use the Move tool to reposition the image inside the letters. See Figure 7.53.

FIGURE 7.51
Select a bold face font, a large point size and an alignment option.

FIGURE 7.52
Position the text accordingly.

5. To take the image one step further, select the type layer and apply a style to it. You can do so by choosing Window ➢ Styles to display the Styles palette, and then clicking on a style. In the example shown here, the Translucent Glass style from the Glass Buttons style set is applied and a drop shadow has been added to it (for more on Layer Styles and drop shadow effects, see Chapter 8, "Layer Styles and Filter Effects"). See Figure 7.54.

FIGURE 7.53
Create a group.

FIGURE 7.54
Select the type layer and apply a style to it.

5. Finally, to complete this print graphic, a shape layer is added above the clipping mask by using the Custom Shape tool. A custom heart shape is drawn and a red color is applied. For consistency, the same layer styles that were applied to the type are also applied to the heart shape. See Figure 7.55.

FIGURE 7.55
Add a shape layer above the clipping mask.

SHAPE MASKS

Shape masks work pretty much like type masks. To create one, all you need to do to is clip an image layer to the shape layer underneath it in the Layers palette. You can change the crop area nondestructively by moving the image or transforming the shape. Figure 7.56 shows an example in which the outline of a four-leaf clover is filled with a landscape image of Ireland.

FIGURE 7.56
Grouping an image layer to a shape layer allows you to create unique combinations of shapes and photos.

Let's take a step-by-step look at how this image was created. The Photospin image used in this example is available in the Chapter 7 folder on the companion CD (1690013_SUPER.TIF).

1. Open the image that you'd like to crop inside a shape. In this example, the image is a landscape of Ireland. Press ⌘/Ctrl+A to select the whole image; then press ⌘/Ctrl+Shift+J to cut the selected image from the Background layer and place it on a new layer above in the Layers palette. Rename the layer accordingly (*Ireland* in this example). See Figure 7.57.

FIGURE 7.57
Open the image you'd like to crop inside a shape.

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2. To create the shape, begin by pressing Option/Alt+[(left bracket) to activate the Background layer. Then press U to access the Shape tool. In the Options palette, click the Shape Layer and Custom Shape tool icons, and then select a shape from the Custom Shape Picker (in this example, I selected the Shamrock shape from the Nature library). Click and drag in the document window to draw the shape. Hold down Shift as you click and drag to constrain horizontal and vertical proportions. As soon as you begin drawing with the tool, a new shape layer is added to the document above the Background layer. See Figure 7.58.

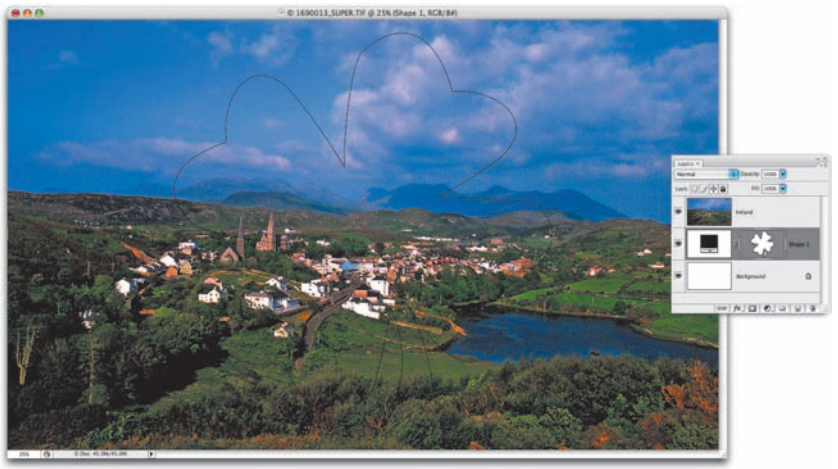

FIGURE 7.58
Create the shape you'd like your image to be cropped inside.

Move Shapes as You Draw Them

Holding down the spacebar as you click and drag with the Shape tool allows you to move the shape in the document window as you draw it.

3. Create a group by Option/Alt+clicking between the Shape layer and the image layer above it in the Layers palette. The image is automatically cropped inside the shape. If you'd like to adjust the crop, you can select the image layer and use the Move tool to reposition the image inside the shape. See Figure 7.59.

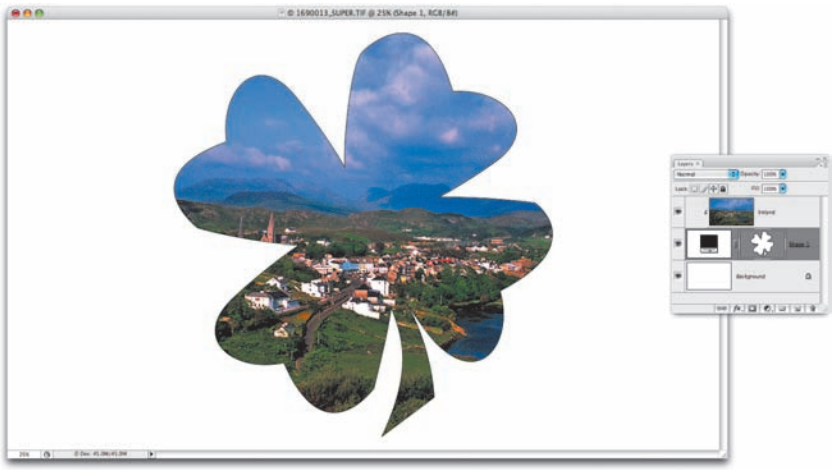

Figure 7.59
The image is cropped inside the shape when you create a group between the Shape layer and image layer.

4. You can add some dimension to the Shape layer by applying a layer style to it. In the example shown here, the Translucent Glass style from the Glass Buttons style set is applied and a dark green drop shadow is added to it (for more on Layer Styles and drop shadow effects, see Chapter 8). See Figure 7.60.

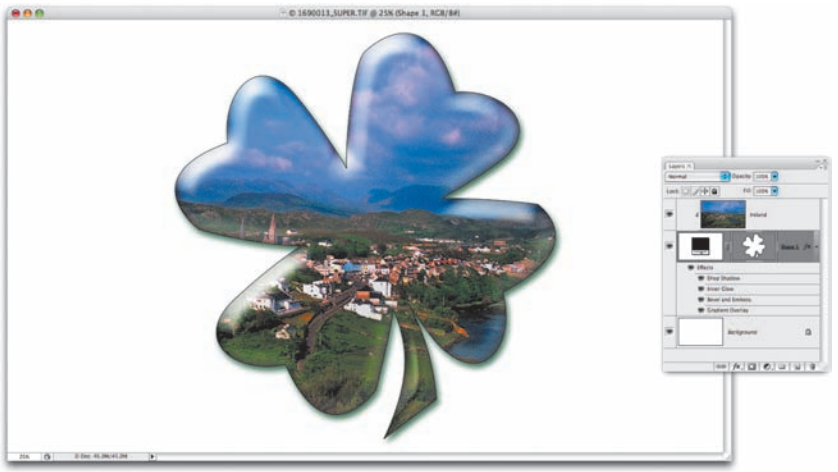

Figure 7.60
Add some dimension to the Shape layer by applying a layer style to it.

5. I then added a green Solid Color adjustment layer to the top of the layer stack in order to add a color tint to the image. To add it to the clipping group, I Option/Alt+clicked between the Solid Color layer and the grouped image layer below it in the Layers palette. Now, by adding the color layer to the group, only images within the group are affected by the color overlay, and I don't have to worry about layer order, should I decide to add any text or other images to the composition. Last, I changed the blend mode of the Solid Color adjustment layer to Hue and lowered its opacity level to 75%. See Figure 7.61.

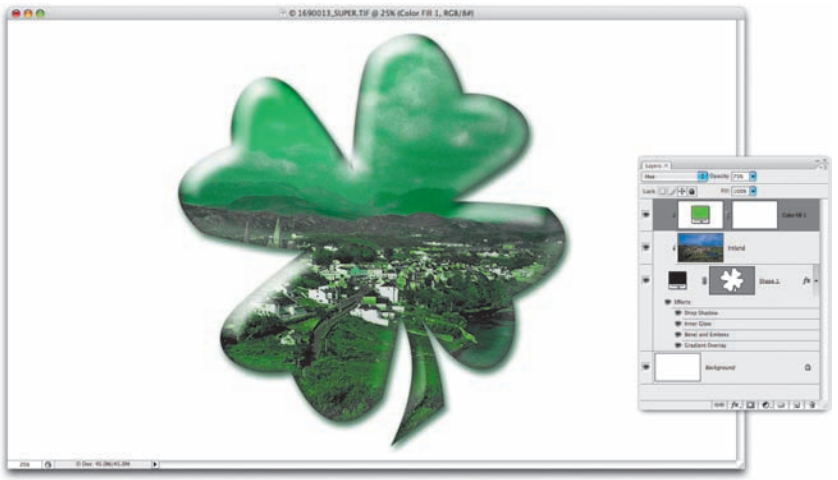

FIGURE 7.61
Add a color tint to the image and change the blend mode.

6. To add some text to the graphic, I extended the canvas by using the Canvas Size dialog box (Image ➢ Canvas Size). Text is generally best added in a layout application such as InDesign, QuarkXPress, or Illustrator (for single page layouts); however, in this instance, I added the text in Photoshop for comping purposes only, or for position only (FPO). See Figure 7.62.

FIGURE 7.62
Add some text to the graphic.

Blending Options

One other way to combine image layers is to apply the Blending Options available in the Layer Style dialog box. These options allow you to create transparent areas in a selected image layer based on how bright or dark the image is.

To access the blending options, double-click the area next to a selected layer's name in the Layers palette. This launches the Layer Style dialog box with the Blending Options panel displayed (see Figure 7.63). At the bottom of the dialog are two sets of sliders; one labeled This Layer and another labeled Underlying Layer. The This Layer slider makes areas of the active layer disappear. The Underlying Layer slider reveals image areas from all underlying layers.

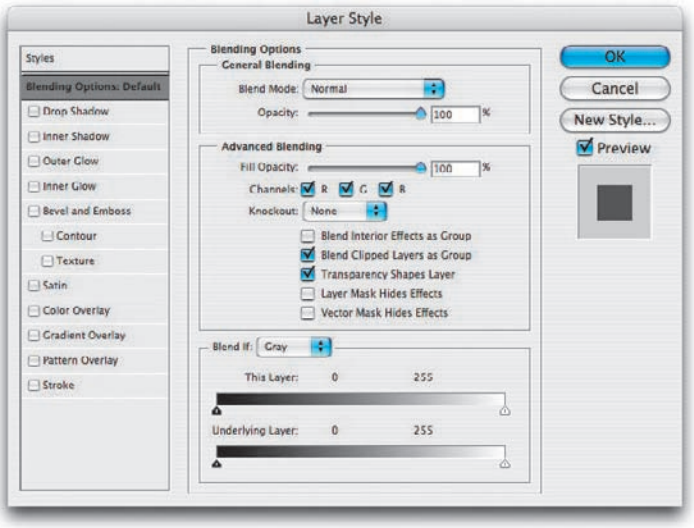

FIGURE 7.63
The Blending Options panel of the Layer Style dialog box.

"This Layer" Sliders As you move the left This Layer slider toward the center of the black-to-white gradient bar, Photoshop hides all those shades of gray in the image that are now to the left of the slider. The closer to the center you drag, the more dark areas you drop in the active image layer.

Moving the right This Layer slider toward the center makes the bright areas to the right of the slider disappear. This can be especially useful for catalog designers attempting to drop a white background on a product shot—provided the image doesn't contain any white areas, such as a ring, or any other shiny metal surfaces (see Figure 7.64). This can eliminate the need for making selections or drawing clipping paths.

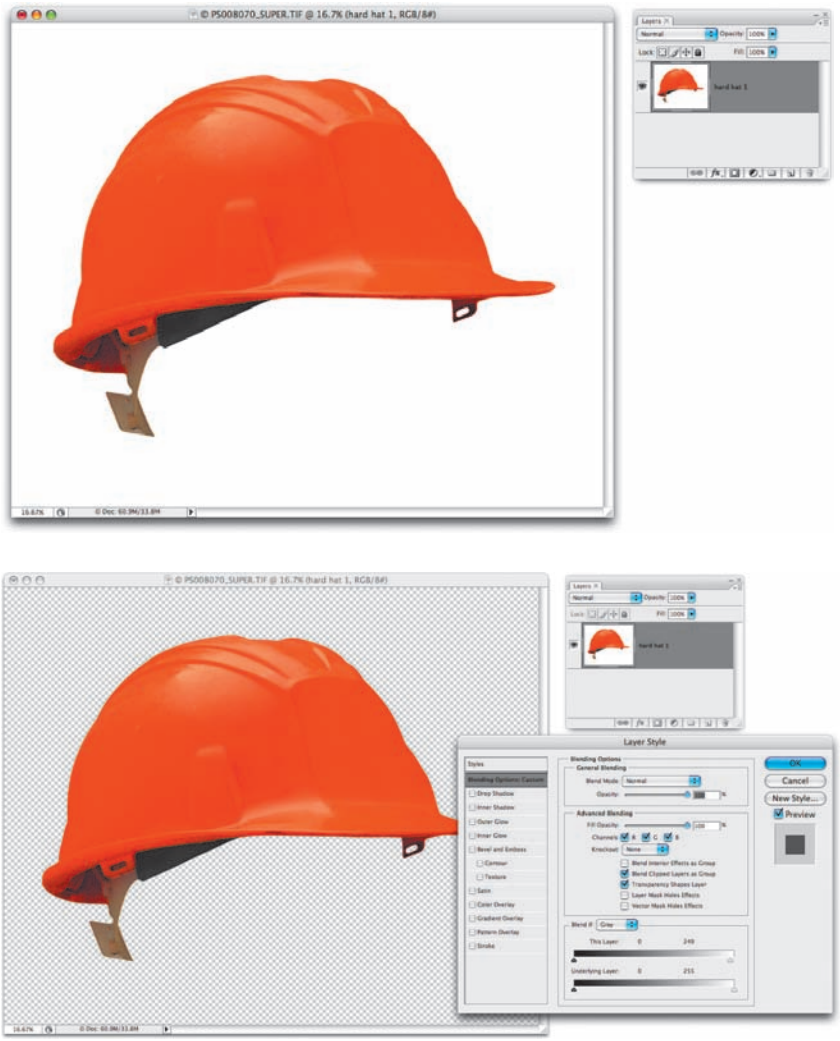

FIGURE 7.64
The original image (top). Dropping the white background by using the right This Layer blending slider (bottom).

With the exception of dropping white backgrounds, the only problem with the blending sliders is that as you move them to drop dark or light areas, the remaining pixels contain crisp, hard edges. To create a transparent blend, you must Option/Alt+click the sliders and drag. This splits the slider into two halves. You can then control the opacity amount of the blend by moving the halves of the slider (see Figure 7.65). The farther apart you make them, the smoother the blend.

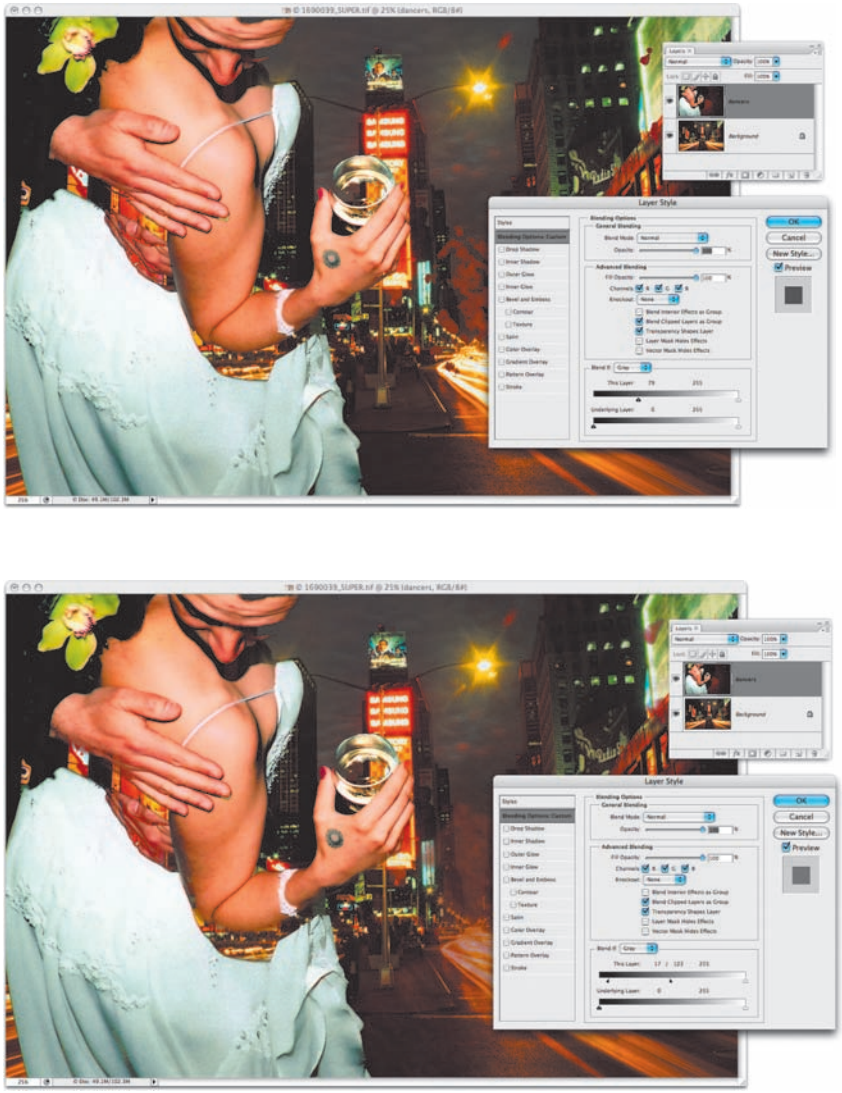

FIGURE 7.65
As you move the sliders, the remaining pixels contain crisp, hard edges (top). Option/Alt+click and drag to split the sliders in two and create a transparent blend (bottom).

"Underlying Layer" Sliders The Underlying Layer sliders work the same as the This Layer sliders, except as applied to all of the layers below the active layer in the Layers palette. As you drag the left and right Underlying Layer sliders closer to the center, more and more of the underlying image areas are revealed. Option/Alt+click and drag to split the sliders in two and create a transparent blend.

A lot of times when I'm creating collage pieces for print materials such as brochures, advertisements, book covers, or magazine layouts, I use layer style blending options along with a gradient layer mask. This allows for more control when combining specific image areas of a composite graphic (see Figure 7.66).

FIGURE 7.66
The original gradient mask blend (top). Adding blending options to the effect (bottom).

The Bottom Line

Combine Image Layers by Using Layer Opacity and Blend Modes Layer opacity and blend modes allow you to combine image layers and create special effects. You can use the Layers palette to adjust the opacity value for individual layers, and change the way layers interact with each other by applying different blend modes.

> **Master It** Create a multilayered composite containing several image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using the Layers palette opacity controls and blend mode options.

Combine Image Layers by Using Layer Masks and Gradients Layer masks allow you to conceal (or reveal) specific image areas—*and* they work nondestructively.

> **Master It** Create a multilayered composite containing at least two image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using layer masks and gradients.

Combine Image Layers with Editable Text by Using Vector Masks One of the most interesting and effective ways of making text and photos work together is to fill the characters of large display type with an image. The great thing about type masks is that they allow you to edit the text, and thus change the crop area, at any time—without damaging any pixels!

> **Master It** Open the image that you'd like to place inside some type. Press D to reset the application default colors of black foreground and white background. Cut the image to a new layer above the Background. Enter a new name for the layer. Now add some bold text on a new layer underneath the image.

Combine Image Layers by Using Blending Options One other advanced way to combine image layers is to apply the Blending Options available in the Layer Style dialog box. These options allow you to create transparent areas in a selected image layer based on how bright or dark the image is.

> **Master It** Create a multilayered composite containing at least two image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using advanced blending options.

Chapter 8

Layer Styles and Filter Effects

Throughout the previous chapters, you've used many of the filters and styles that ship with Photoshop in the context of learning how to use other tools. In this chapter, however, they will be your primary focus as you use them to add some creative flair to your print images. Just by including a simple drop shadow, border, outer glow, or all of these, you can greatly add to your image's overall presentation. Photoshop offers a multitude of filters, styles, and effects to choose from, many of which can be applied with a minimum of effort.

In this chapter, you will learn to:

- Apply layer styles
- Save custom styles
- Apply "smart filters" to your print images
- Create eye-catching print graphics with the Filter Gallery

Layer Styles

Layer styles are similar to adjustment layers (and different from filters) in that they allow you to edit applied effects dynamically without having to create a smart object version of the image layer first. This means that you can apply editable effects to a selected image, shape, or type layer without permanently altering any pixels. Because they work nondestructively, layer styles are referred to as *live effects*. Some of these live effects include drop shadows, inner and outer glows, and bevels.

Layer styles can be incorporated into your work in many ways. You can apply styles to individual image layers of a composition, or to an entire layered composition (after it has been flattened or merged into a separate layer). Here are just some of the ways you can use layer styles to enhance your print images:

- Apply the Drop Shadow or Outer Glow style to transparent image layers, to a selection, to type or shape layers, or to a flattened composite (see the product shot example in the "Utilizing Layer Style Effects" section of this chapter).
- Create colorful text or image composites by applying layer styles to shape or type layers (see the "Type Masks" section of Chapter 7, "Combining Image Layers").
- Change the color of a transparent image layer or selection (see Chapter 4, "Working with Color").

Using the Layer Style Dialog Box

There are several ways you can apply a layer style to a layer. First, select an individual layer in the Layers palette and then do one of the following:

- Choose Layer ➢ Layer Style and select an effect from the submenu list.
- Click the Add Layer Style button at the bottom of the Layers palette (the one with the *fx* icon), and choose an effect from the list.
- Double-click anywhere in the area surrounding the layer's name in the Layers palette (double-clicking the name itself allows you to change the layer's name by typing).

Applying a layer style by using any of these methods automatically launches the Layer Style dialog box. In the dialog, there is a menu on the left that allows you to choose which effects you'd like to enable. Click the check box next to an effect's name (or the name itself) to turn it on. Doing so automatically displays the controls for the chosen effect on the right side of the dialog (see Figure 8.1).

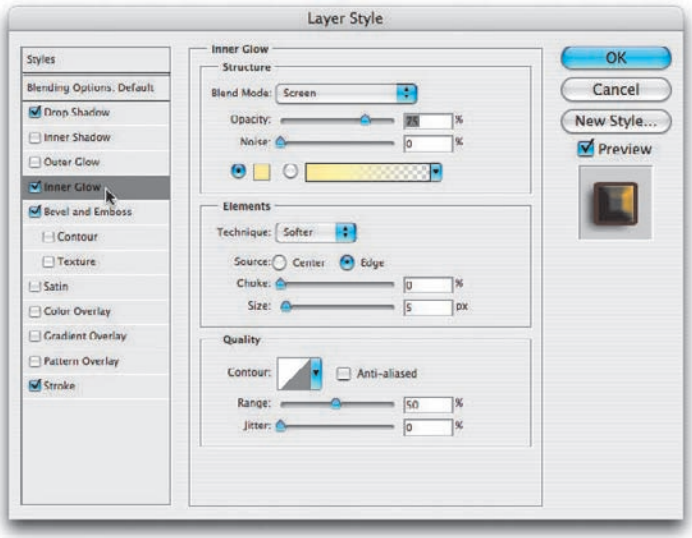

FIGURE 8.1
To enable an effect and display its controls in the Layer Style dialog box, click the effect name from the menu on the left.

Note that when you select a layer style from the Layer Style submenu or select an effect from the list when clicking the Add Layer Style button, the dialog automatically appears with the panel for the chosen effect displayed, and the effect already enabled. Alternatively, double-clicking a layer from the Layers palette opens the Layer Style dialog with the Blending Options panel displayed and no effects enabled (for more on blending options, see Chapter 7).

Each layer style contains its own settings; however, many of the controls are available for more than one effect and they operate in the same way. For example, there is a blend mode option available in the control set for every effect (for more on blend modes, see Chapter 7). Despite the similarities, there are still far too many controls to explain each one in a single chapter. The best way to become familiar with them is to experiment. Apply a layer style, play around with the control settings, and use the Preview option to decide whether you like what you see. You'll notice as you experiment that many of the controls are self-explanatory and the dialog is very intuitive.

Here are some things to take note of when working with layer style effects and the Layer Style dialog:

- Layer styles cannot be applied to the Background layer.
- Unless multiple layers are grouped into a smart object first, layer styles can be applied to only a single selected layer at a time—not to multiple selected layers or to layer groups.
- You can combine multiple layer style effects on a single layer (Figure 8.2).

FIGURE 8.2
A layer with Drop Shadow, Bevel And Emboss, and Pattern Overlay applied.

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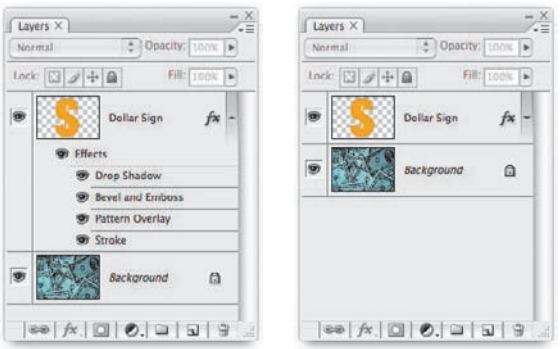
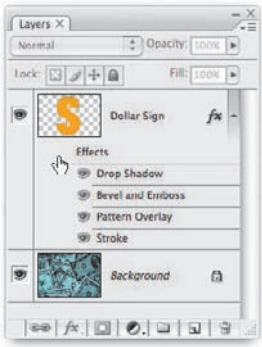
- Layer styles are attached to the layer. Therefore, when you move the layer in the Layers palette, the effects tag along.
- Type layers remain editable even after a layer style effect is applied.
- Layer styles can be copied from one layer to another (see the "Copying Styles" section later in this chapter).
- Photoshop displays applied layer style effects as items in the Layers palette. The list of effects can be expanded or collapsed by clicking the triangle icon next to the layer's *fx* icon in the palette.



- Clicking the familiar eye icon next to each effect's name in the Layers palette temporarily disables the layer style. Click the eye next to the word *Effects* to temporarily disable all the applied layer styles for that layer.



- Lowering the Fill percentage in the Layers palette reduces the opacity of the layer, but not the applied layer styles (Figure 8.3).

FIGURE 8.3
Lowered Fill percentage

- The Global Light option in the Layer Style dialog box tells Photoshop to apply the same angle to all direction-dependent effects, such as Drop Shadow, Inner Shadow, and Bevel And Emboss. The idea here is to simulate consistent real-world lighting.
- For Shadow and Glow effects, use the Size slider to soften the effect.
- Layer styles can be applied to smart objects along with "smart filters."
- Combinations of layer style effects can be saved for later use in the Styles palette (see the "Saving and Applying Styles" section later in this chapter).

Utilizing Layer Style Effects

With the exception of the Drop Shadow effect (and sometimes Outer Glow), layer styles are best when applied to type layers, shape layers, or any layers containing filled selections or brush-strokes—*not* extracted image layers (for more on extracting images, see Chapter 2, "Making Good Selections"). The best use for these effects is for creating logos, type effects, emblems, and buttons.

Here's a brief summary of what each effect does:

Drop Shadow applies a *basic* drop shadow—not a *perspective* drop shadow—to the images, type, or shapes that are contained within the layer (Figure 8.4). Photoshop allows you to specify the color, opacity, blend mode, position, size, and contour of the effect. Layer style drop shadows work well with everything, including catalog product shots, logotype, and shape layers. Keep in mind however, that a similar drop shadow effect is available in both InDesign CS3 and QuarkXPress 7 and can be applied to transparent images (or images with clipping paths embedded) that are placed in a layout. I often prefer to place transparent images and add drop shadows directly in the layout application. That way I can see how the drop shadow is going to look in my layout as I'm adding it to the placed graphic.

FIGURE 8.4
Drop Shadow

Inner Shadow applies a basic drop shadow to the inside boundaries of any images, type, or shapes that are contained within the layer (Figure 8.5). As with Drop Shadow, Photoshop allows you to specify the color, opacity, blend mode, position, size, and contour of the shadow.

FIGURE 8.5
Inner Shadow

Outer Glow applies a halo effect around any images, type, or shapes that are contained within the layer (Figure 8.6). The effect is similar to Drop Shadow, but without the Angle setting. It works well with extracted images as well as with type and shapes.

FIGURE 8.6
Outer Glow

Inner Glow applies the glow effect to the inside boundaries of any images, type, or shapes that are contained within the layer (Figure 8.7). The effect is similar to Inner Shadow, but without the Angle setting. Inner Glow is great for creating buttons and type effects.

FIGURE 8.7
Inner Glow

Bevel And Emboss applies a three-dimensional edge effect to any images, type, or shapes that are contained within the layer. You can specify which edge effect to apply from the Style drop-down list. Options include Outer Bevel (Figure 8.8), Inner Bevel (Figure 8.9), Emboss (Figure 8.10), Pillow Emboss (Figure 8.11), and Stroke Emboss (Figure 8.12). Of all these options, Inner Bevel and Pillow Emboss are the most commonly used. Note that the Stroke layer style must be enabled in order to apply the Stroke Emboss effect. Enable the Contour option (Figure 8.13) to add variations to the opacity, creating a rippled lighting effect; enable the Texture option (Figure 8.14) to stamp a textured pattern into the layer. Contours and textures can be specified by using the Contour Picker and the Texture Picker.

FIGURE 8.8
Outer Bevel

FIGURE 8.9
Inner Bevel

FIGURE 8.10
Emboss

FIGURE 8.11
Pillow Emboss

FIGURE 8.12
Stroke Emboss

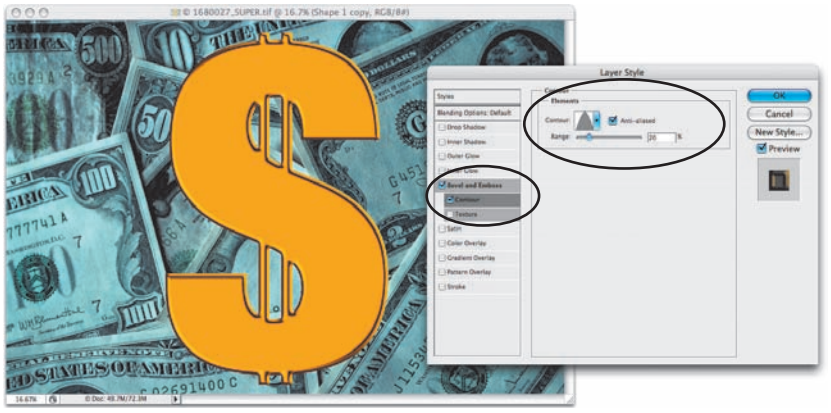
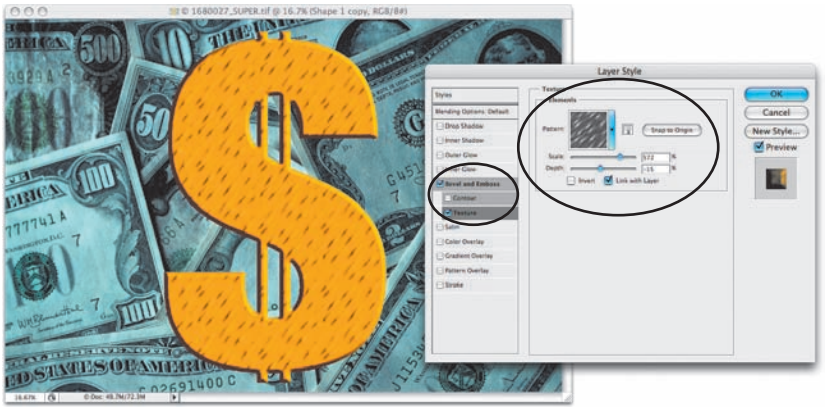


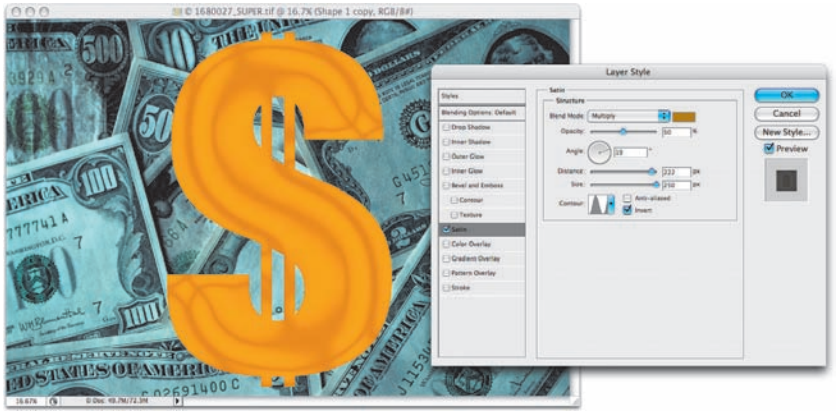
FIGURE 8.13
Inner Bevel, Contour: Cone, Range: 20%

FIGURE 8.14
Inner Bevel, Texture, Pattern: Streaks



Satin adds variations to opacity, creating waves of repeating color as defined by the Contour option specified (Figure 8.15).

FIGURE 8.15
Satin



Color, Gradient, and Pattern Overlay coats the layer with a solid color, gradient, or pattern, respectively (Figures 8.16, 8.17, and 8.18). These effects work best when combined with other layer styles, such as Bevel And Emboss. To really make the most of these overlay effects, try experimenting with the Blend Mode setting for each.

Stroke places a colored outline around any images, type, or shapes that are contained within the layer (Figure 8.19). Applying the Stroke layer style is a good alternative to using the Edit ➢ Stroke command, because (as you now know) layer styles can be edited long after they are applied, whereas menu commands cannot.

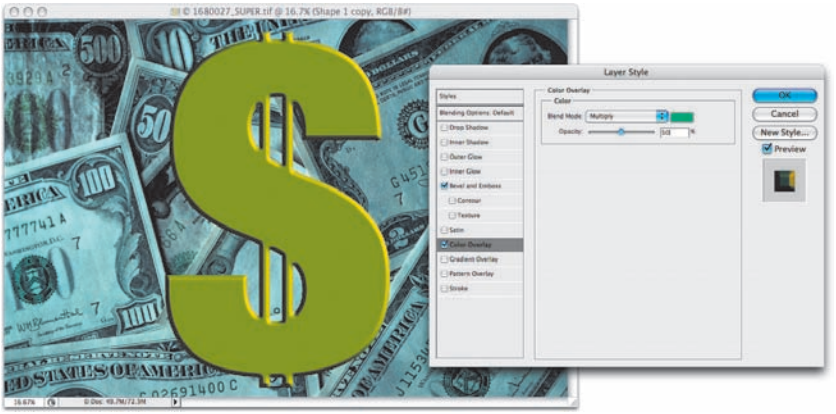


FIGURE 8.16
Color Overlay: Green (Multiply Mode, 50% Opacity) + Inner Bevel

FIGURE 8.17
Gradient Overlay: Orange, Yellow, Orange (Multiply Mode, 100% Opacity) + Inner Bevel

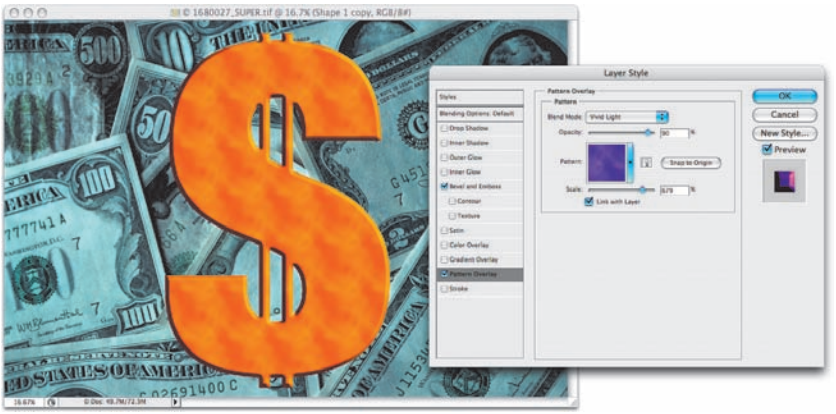


FIGURE 8.18
Pattern Overlay: Purples (Vivid Light Mode, 90% Opacity)

FIGURE 8.19
Stroke

TYPE EFFECTS: PHOTOSHOP VS. ILLUSTRATOR

There's no doubt that you can create some stunning type effects with layer styles. However, there is a downside to creating all of your type effects in Photoshop. Unfortunately, in most cases you wind up flattening the file, which results in a bitmap graphic, and as you know, bitmap graphics are made up of pixels. When you're working with pixels in print design, it doesn't matter how high the resolution of the graphic is, if it includes type, the characters will always appear too soft when printed.

Most important—all the type in your print designs should be *easy to read*. Ideally, you want the type in your layouts to appear nice and sharp when printed, not blurry and soft. Before you start creating all your type effects in Photoshop, consider creating as many of them as possible in a vector-based program such as Illustrator, Freehand, or even InDesign.

Vector-based applications such as Illustrator allow you to create graphics that are based on a series of mathematical curves, *not* pixels. Vector graphics always print nice and sharp, and are not resolution dependent. This means that you can size them as large or as small as you want in a layout without having to worry about how well they will output.

Additionally, many raster effects, including drop shadows and outer glows, can be created in vector applications such as Illustrator and InDesign. When these types of transparent raster effects are applied in a vector application, they are rasterized when the file is output. Depending on the transparency flattener setting you've chosen to apply when outputting the layout, the type should remain sharp while the effect remains soft.

Photoshop does contain some layer style effects, such as Bevel And Emboss and Satin, which you can't reproduce as well in vector applications (although the new Bevel And Emboss and Satin effects in InDesign CS3 work *extremely* well for vector). However, keep in mind that from a design standpoint, applying these effects can sometimes make your type stick out like a sore thumb in a layout. I can always spot a Photoshop type effect when I see one, and that's not always a good thing. My advice is, if you're going to use Photoshop layer styles with type, be sure to use them tastefully.

Using the Styles Palette

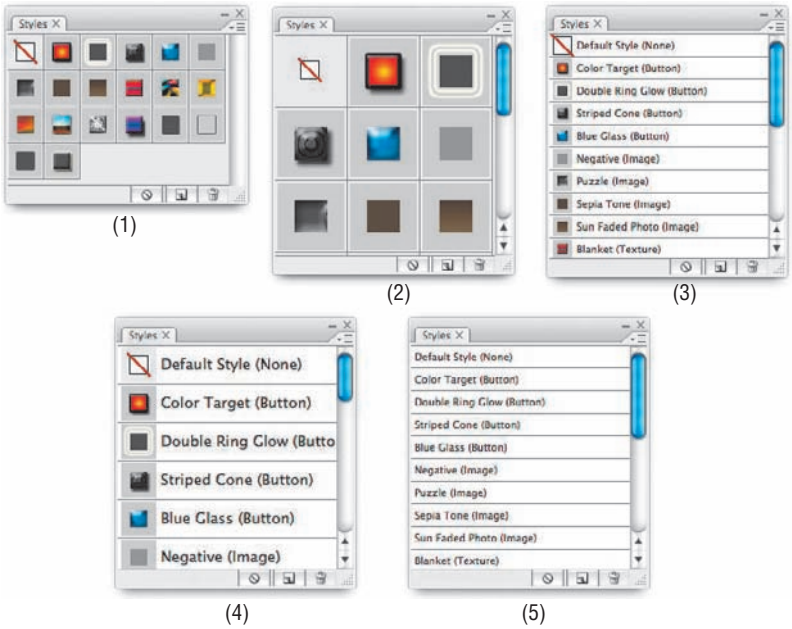
The Styles palette in Photoshop allows you to save your favorite layer style combinations for later use. The palette also gives you access to the dozens of style presets that come with Photoshop. To display the palette, choose Window ➢ Styles (see Figure 8.20).

FIGURE 8.20
The Styles palette

The Styles palette displays the default set of styles as thumbnail samples. With tool tips enabled in Photoshop's preferences (see Chapter 1, "Getting Started"), hovering the mouse over each thumbnail in the palette reveals the style name. To view more thumbnails at a time, you can resize the palette by clicking and dragging the bottom-right corner.

To change the way the styles are displayed, click the palette menu button to reveal the flyout window. Here you can choose to display the style presets in small or large thumbnails, in small or large list view, or as text only (see Figure 8.21).

FIGURE 8.21
Modifying the Style palette display: (1) Small Thumbnail, (2) Large Thumbnail, (3) Small List, (4) Large List, (5) Text Only



The Styles palette flyout menu lets you select which of Photoshop's available style presets to display (see Figure 8.22). Photoshop gives you the option to replace the current set with a new one or to append the set, adding new presets to the ones already displayed in the palette. Each new set you select is displayed in the palette until you replace it or append it with another selection.

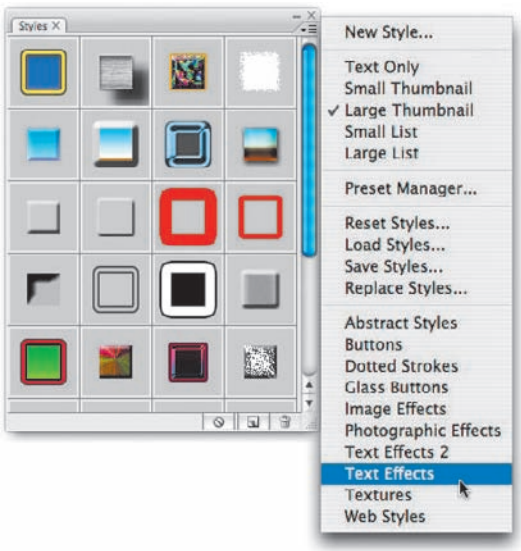


FIGURE 8.22
The Styles palette menu gives you access to all the available style presets. Shown here is the Text Effects set displayed in Large Thumbnail view.

You can delete a selected style by Control+clicking (Mac) or right-clicking with a two-button mouse and choosing Delete Style from the pop-up menu (Figure 8.23). After clicking OK in the warning dialog box that appears, Photoshop removes the style from the set immediately.

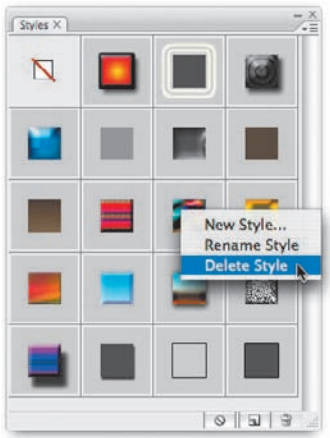


FIGURE 8.23
Shown here is the Delete Style option from the pop-up menu.

Fortunately, you can restore deleted styles to the set by choosing Reset Styles from the Styles palette flyout menu. When resetting, a warning dialog box appears asking whether you'd like to display the default style set, or add it to the currently displayed list of styles by clicking Append.

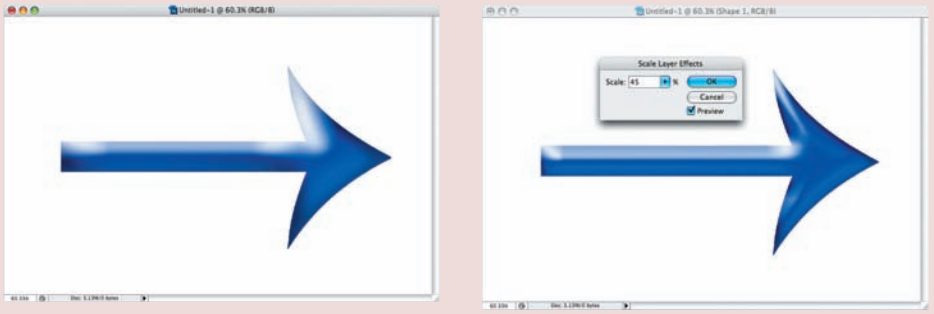
To commit to the change, click OK. Photoshop then asks whether you'd like to save the changes you've made to the current set before resetting.

To save changes made to a set, choose Save Styles from the Styles palette flyout menu or from the warning dialog box described earlier when resetting. Photoshop then displays the Save dialog box, where you can name the new set. The default file location on your system for custom style presets is in the `Applications/Adobe Photoshop CS3/Presets/Styles` (Mac) or `Program Files/Adobe/Photoshop CS3/Styles/Brushes` folder (Win). If you choose not to save and proceed to apply the Reset Styles command, all changes you've made to the style presets will be lost.

Scale Effects

Layer styles can be scaled to fit a particular graphic. For example, you may want to apply one of the Glass Button styles from the Styles palette to a thin shape, such as an arrow. When applying the style, you may find that the bevel depth amount and other effect settings are way too large for the thin shape. To resize all effects at once, select the layer in the Layers palette and choose Layer Style ➢ Scale Effects from either the Layer menu or the pop-up menu (Control+click on the Mac, or right-click with a two-button mouse).

In the Scale Layer Effects dialog box that appears, enter a scale percentage in the numeric field or use the slider. Enable the Preview option to determine the appropriate size for the applied effects. After the effects are scaled to fit, click OK to apply the transformation. Shown here is a Glass Button layer style being scaled.



Saving and Applying Styles

There are several ways to save your custom layer style settings as a style. With the Styles palette visible, select the layer containing the effects that you'd like to save from the Layers palette, and then do one of the following:

- Choose New Style from the Styles palette flyout menu.
- Click the Create New Style icon at the bottom of the Styles palette.
- Place your cursor over the Styles palette until the cursor icon changes to display a paint bucket, and then click to add the style.
- Drag and drop the layer into the Styles palette.

When saving styles by using any of the preceding methods, Photoshop always displays the New Style dialog box, which allows you to name the style and to specify whether to include layer effects, blending options, or both (see Figure 8.24).

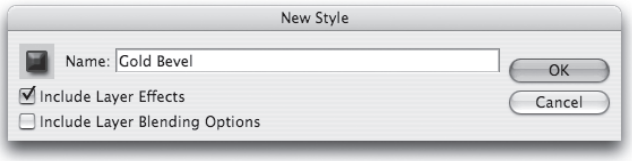


Figure 8.24
The New Style dialog box allows you to name the style and define what layer attributes to save.

After you've finished naming the style and specifying which layer attributes to include, click OK to close the New Style dialog box. Photoshop adds the new style to the set that is currently displayed in the Styles palette.

Click any preset style in the palette (custom or default) to apply its saved settings to the currently selected layer in the Layers palette (see Figure 8.25).

Figure 8.25
The original layer (left). The same layer after clicking once on the Neutral Bevel style preset.

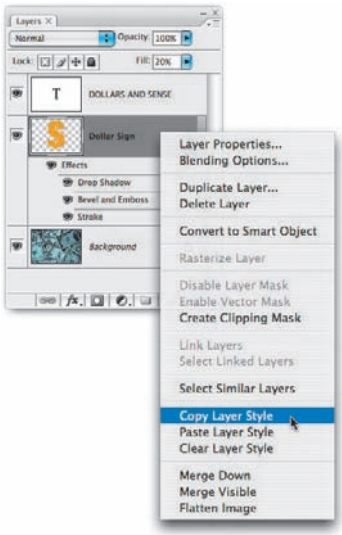
Copying Styles

Aside from saving your own custom style settings in the Styles palette, an alternative way to apply edited styles is to copy them. There are two ways you can do this:

- In the Layers palette, select the layer that contains the style you'd like to copy. Then choose Copy Layer Style from the Layer ➢ Layer Style submenu or from the pop-up menu (right-click with a two-button mouse, or Control+click on the Mac). Select the layer you'd like to

apply the style to and choose Paste Layer Style from the Layer ➢ Layer Style submenu or from the pop-up menu. See Figure 8.26.

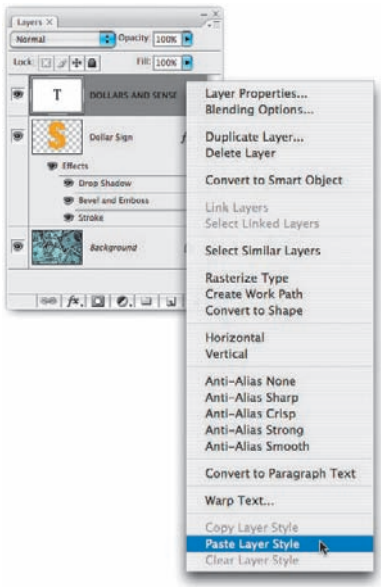
FIGURE 8.26
Copy Layer Style



- Option/Alt+drag the layer style *fx* icon from the styled layer to another layer in the Layers palette.

Note also that layer styles can be copied and pasted or Option/Alt+dragged between two entirely different documents (Figure 8.27).

FIGURE 8.27
Paste Layer Style



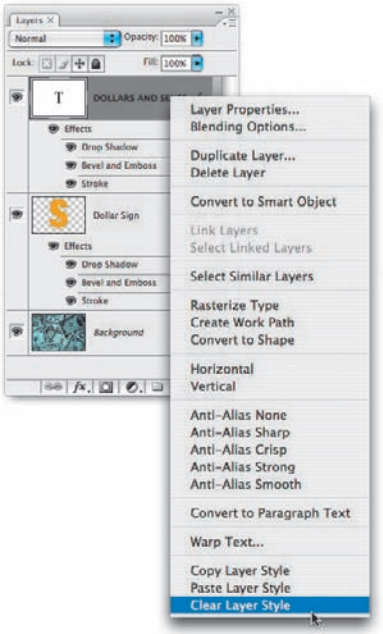
Clearing Styles

I encourage you to experiment with layer styles. Add several of them to a layer, try tweaking their settings, and see what happens. After a short while, you'll soon find that manipulating live effects can become addicting. It's very easy to overdo it. Eventually you'll reach a point where you just want to start over. Thankfully, the Clear Styles command allows you to delete any applied styles and start fresh.

There are two ways to apply the command:

- In the Layers palette, select the layer containing the styles you'd like to delete. Then choose Clear Layer Style from the Layer ➢ Layer Style submenu or the pop-up menu (right-click with a two-button mouse, or Control+click on the Mac). As soon as you apply the command, the effects disappear immediately from the document window, as does the Layer Style icon and list of effects in the Layers palette. See Figure 8.28.

FIGURE 8.28
Clear Layer Style



- Click and drag the layer style *fx* icon from the layer to the trash icon at the bottom of the Layers palette. As soon as you release the mouse button, the layer style effects disappear immediately from the image window and the Layers palette.

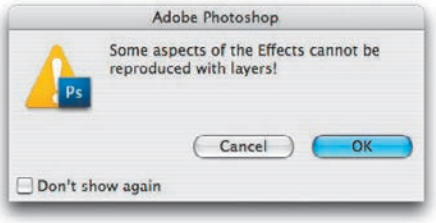
CLEARING FROM THE POP-UP MENU

Control+click (Mac) or right-click with a two-button mouse on the Layer Style icon in the layer (not at the bottom of the palette) to access the Clear Layer Style command from a pop-up menu.

Creating Layers from Styles

Photoshop also allows you to convert "live" layer style effects into individual rasterized layers, thereby rendering them uneditable with the Layer Style dialog box. In most cases, it's best to leave your effects editable and not convert them. However, to prevent another artist from changing your effects—let's say for an advertising piece that you're sending to another publication—you can always apply the Create Layers command.

The Create Layers command is accessible only from the Layers ➢ Layer Style submenu. Select the layer you'd like to convert and then choose Layer ➢ Layer Style ➢ Create Layers. Photoshop displays a warning dialog box to let you know that some of the effects (usually combinations of multiple effects) cannot be reproduced by using layers—another downside to creating layers from styles.



After clicking OK to bypass the warning dialog box, the Layer Style icon disappears from the layer in the Layers palette and each effect is converted into a rasterized layer, and when necessary, a clipping mask or group. From this point forward, the effects are no longer editable by using settings in the Layer Style dialog (see Figure 8.29). You can use the History palette to toggle back and forth between states to determine whether something changed.

FIGURE 8.29
The original image with layer styles applied (left). The same image after converting styles to layers (right).

Filters and the Filter Gallery

In the days before digital image editors such as Photoshop, the only way to apply a filter to a photograph was to use special interchangeable camera lenses that allow you to tint or adjust a scene before capturing it to film. Nowadays in the digital age, you can use Photoshop to apply

filters to an image long after it has been captured. And not only that, but the built-in filters available in Photoshop allow you to do much more than just apply a tint or make a slight adjustment. In fact, you can change the focus, alter the color, distort the image, and even apply special effects (see Figure 8.30).

(1) (2) (3) (4)

FIGURE 8.30
Some examples of applied filters: (1) original image, (2) with Blur ➢ Radial Blur, (3) with Artistic ➢ Poster Edges, (4) with Distort ➢ Ocean Ripple

There are so many filter commands in Photoshop (more than 100) that it would be impossible to describe each and every one in a single chapter. Figure 8.31 shows part of the Filter menu. The filter commands all produce different effects, and many of them contain different dialog box options and controls. Some are easy to apply, and others are quite complicated. The best way to become familiar with them is through good old-fashioned experimentation. Choose a filter to apply, play around with its dialog box settings, and use the preview to decide whether you like what you see.

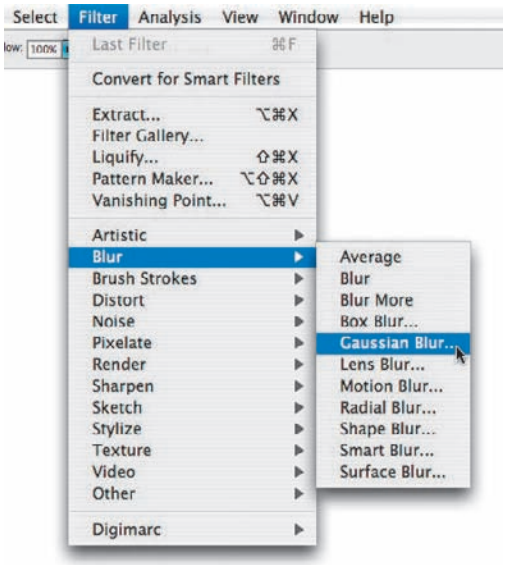


FIGURE 8.31
The Filter menu contains more than 100 commands organized by category into submenus. Shown here is the Blur submenu.

There are many ways to incorporate filters into your work. These filters can be applied to individual image layers, or to an entire layered composition after it has been flattened or merged into a separate layer. Here are just some of the ways you can use filters to enhance your print images:

- Use the Texture filters to create textured layers and backgrounds—a great technique for four-color brochures.
- Use the Blur filters to soften backgrounds and image layers, or to imply motion—great for product shots and catalog imagery.
- Use the Distort filters, such as Liquify, Spherize, or Wave, to distort image layers and type. Liquify can be an especially useful retouching tool (see Chapter 6, "Retouching and Enhancing for Print").
- Use the Artistic, Brush Strokes, and Sketch filters to give your print layouts and designs a simulated natural media appearance.
- Sharpen your final print image (see Chapter 9, "Reducing Noise and Sharpening").

Many of these filter effects are already set up for you in the Actions palette and can be applied with just one simple click of the mouse (see Chapter 12, "Automation").

A Word of Warning

As a print designer, the biggest challenge when working with filters is maintaining the willpower not to overdo it. A lot of the filter effects can completely change the overall appearance of your image—*so use them with caution*. It's always best to use creative restraint and apply them tastefully.

Another caution is that filter effects, unlike the layer styles discussed earlier in the chapter, are by default, not "live" or nondestructive unless applied to a smart object. This means that if you forget to convert the image into a smart object before applying filters, they will permanently alter pixel information. If not applied to smart objects, the only way to reverse a filter effect is to apply the Edit ➢ Undo command *before you close the file*.

To apply a filter to all the image information in a multilayered composition, the image must also be flattened or all the layers must be converted into a smart object. Therefore, to protect and preserve your pixels and layers, it's always a good idea to experiment with filters on a merged layer (see the following "Creating a Merged Layer" sidebar and Figure 8.32) or on a duplicate, flattened version of your composition before saving your changes.

FIGURE 8.32
To preserve pixels and image layers for this layered composition, I applied the Filter ➢ Artistic ➢ Poster Edges effect to a merged layer at the top of the Layers palette.

CREATING A MERGED LAYER

To create a merged layer, select the layers in the Layers palette, and then while holding down Option/Alt, choose Merge Layers from the Layers palette flyout menu. Doing so creates a merged layer and leaves the selected layers intact. The merged layer appears above the topmost selected layer in the palette.

Applying Filters

Unless you are working with multiple layers in a smart object, filters can be applied to only a single selected layer in the Layers palette (not to multiple selected layers). After the layer is targeted, filters can be applied to a selection made within the active layer, or if nothing is selected, to all the pixels contained in that layer (see Figure 8.33).

FIGURE 8.33
With a selection made, applying Filter ➢ Blur ➢ Gaussian Blur affects only the pixels in the selected area of the layer (left). With no selection made, the Blur filter is applied to every pixel in the layer (right).

You can apply a filter effect to the selected pixel area by choosing a filter from the Filter menu. As mentioned earlier, the menu contains more than 100 filters, all organized alphabetically by category and divided into submenus. Each submenu is given a descriptive name, such as Artistic, Blur, or Distort. Photoshop displays any third-party filters (that is, filters that you've purchased and installed separately) at the bottom of the menu.

Photoshop always displays the last used filter at the top of the Filter menu. To reapply the filter, press ⌘/Ctrl+F.

Note that some filters (such as Gaussian Blur) have their own options dialog box (Figure 8.34), whereas others (such as all the commands in the Artistic category) are controlled through the Filter Gallery dialog box, such as the Diffuse Glow filter shown in Figure 8.35. There are also filters that display no dialog box at all (indicated by the lack of ellipsis after the filter name in the menu), such as Blur or Despeckle. Filter commands that are controlled via the Filter Gallery can also be accessed by choosing Filter ➢ Filter Gallery, and selecting them from within the Gallery interface.

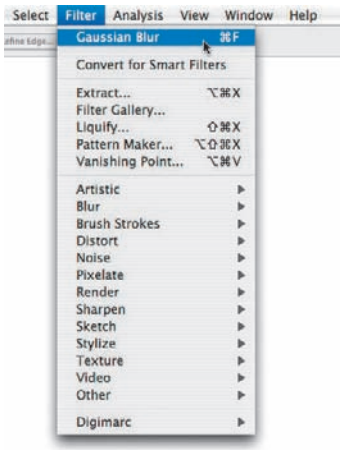


FIGURE 8.34
The Gaussian Blur accessed through an option dialog box

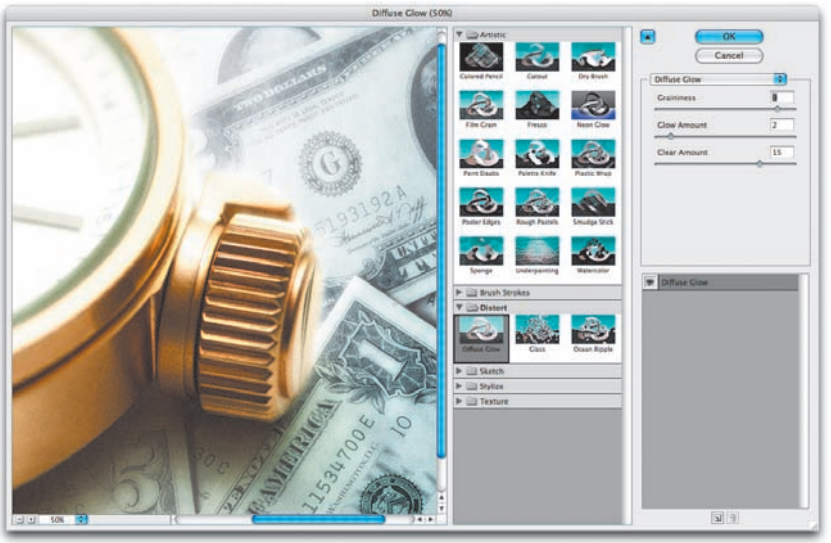


FIGURE 8.35
The Diffuse Glow controlled through the Filter Gallery dialog box

Smart Filters

With Photoshop CS3, any of the filters are automatically treated as "live" effects when applied to smart objects. This means that you can now preserve the ability to edit filters (as well as Shadows/Highlights adjustments) that are applied to smart objects. These "smart filters" behave very much like adjustment layers, allowing you to alter settings at any time after the effect is applied, without losing pixel data or compromising image quality.

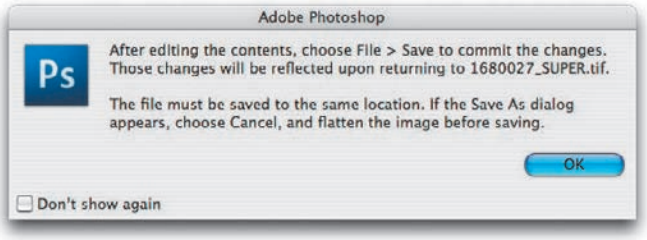
Defining Smart Objects

Smart objects in Photoshop are treated similarly to linked supports in layout applications such as InDesign or QuarkXPress. Image layers that are converted to smart objects are actually embedded into the Photoshop file, unlike linked supports in InDesign or QuarkXPress. However, even though the image is embedded, when it comes to editing, Photoshop still treats smart objects like traditional links in a layout application. Any changes (other than scaling, transforming, masking, or applying layer styles and smart filters) must be made to the source content file that Photoshop creates when converting.

To erase any image areas or to apply any adjustments directly to the smart object layer (such as Levels, Curves, or Hue/Saturation), you must choose Edit Contents from the Layers palette flyout menu or from the Layer ➢ Smart Objects submenu. An even easier way to edit smart objects is to double-click the smart object thumbnail in the layer.

After choosing Edit Contents or double-clicking the smart object thumbnail, Photoshop displays a warning dialog box that reminds you that you must save after editing the source content file in order for the embedded preview to update in the layered document (see Figure 8.36). Click OK to bypass the dialog and open the source content PSB file.

FIGURE 8.36
By default, Photoshop displays a warning dialog box when editing smart objects.



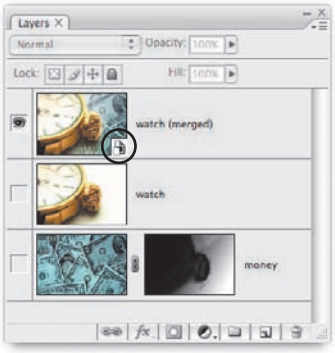
When you've finished making your edits, choose File ➢ Save and close the PSB file. The image layer automatically updates in the layered document.

Smart objects can also be used to embed Adobe Illustrator or Camera Raw files into a Photoshop document. However, when the images are edited in Illustrator or Camera Raw, they do not automatically update in the PSD file.

APPLYING SMART FILTERS

To apply a smart filter, you must first convert the image layer into a smart object. To do so, choose Convert To Smart Object from the Layers palette flyout menu or from the Layer ➢ Smart Objects submenu. You can also choose Filter ➢ Convert For Smart Filters. After the image is converted, Photoshop displays a Smart Object icon in the bottom-right corner of the layer image thumbnail in the Layers palette (see Figure 8.37).

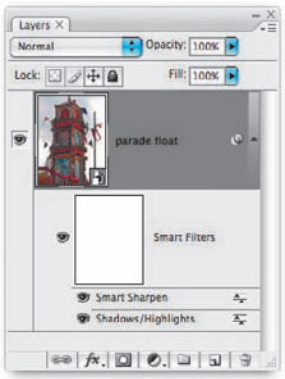
FIGURE 8.37
The Smart Object thumbnail icon



From the Filter menu, choose a filter to apply to the smart object. Note that Extract, Liquify, Pattern Maker, and Vanishing Point cannot be applied as smart filters. You can apply as many filters as you like, including filter combinations made with the Filter Gallery (see "The Filter Gallery" section later in this chapter). Although technically not a filter, you can also apply the Shadows/Highlights adjustment as a smart filter. Additionally, smart filters allow you the opportunity to apply the same filter settings to multiple layers at once, because a smart object can be created from multiple selected layers. Note that grouping multiple layers into a smart object can change an image's overall appearance, especially if the layers are not adjacent to each other in the Layers palette. Smart filters can also be applied to RAW files that have been embedded in a smart object.

After smart filters are applied, Photoshop displays them in the Layers palette similarly to the way it displays layer styles—as a list of items underneath the image layer. The list of effects can be expanded or collapsed by clicking the triangle icon next to the layer's *fx* icon in the palette. Clicking the familiar eye icon next to each effect name in the Layers palette temporarily disables the filter. Click the eye next to the words *Smart Filters* to temporarily disable all the applied filters for that layer. See Figure 8.38.

FIGURE 8.38
Applying Smart Filters

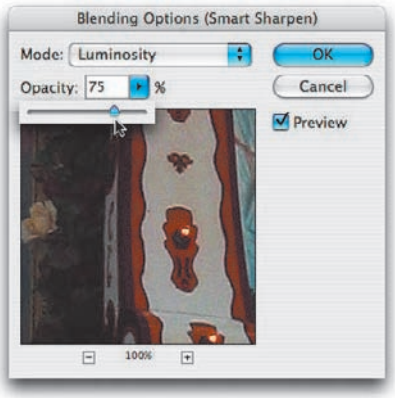


Smart filters also come equipped with their own masks, which can be used to control visibility for the applied effects in a nondestructive way. Painting in a smart filter mask with a brush is a great hands-on technique for applying filters to an image layer (for more on this technique, see Chapter 3, "Working with Brushes").

After the initial filter settings have been chosen and the filter dialog box has been closed, you can reopen it at any time to change settings. To reopen the filter dialog box, double-click the smart filter name in the Layers palette.

Each smart filter also contains its own blend settings that allow you to control how the filters interact with each other. By double-clicking the icon to the far right of the smart filter name in the list of applied effects, you can access the Blending Options dialog box (Figure 8.39), where you can apply preferred transparency and blend mode settings to the filter.

FIGURE 8.39
The Blending Options dialog box



The Filter Gallery

The Filter Gallery allows you to choose from a select group of filter effects and apply several of them to an image at once. You can access the Filter Gallery by choosing it from the Filter menu or by choosing any filter that is handled by the gallery interface, such as the Artistic, Brush Strokes, or Sketch subsets.

As shown in Figure 8.40, the Filter Gallery dialog box is made up of four sections: a preview area with zoom controls, a filter menu list (complete with descriptive thumbnails for every effect), a dynamic filter settings area, and a list of applied effect layers.

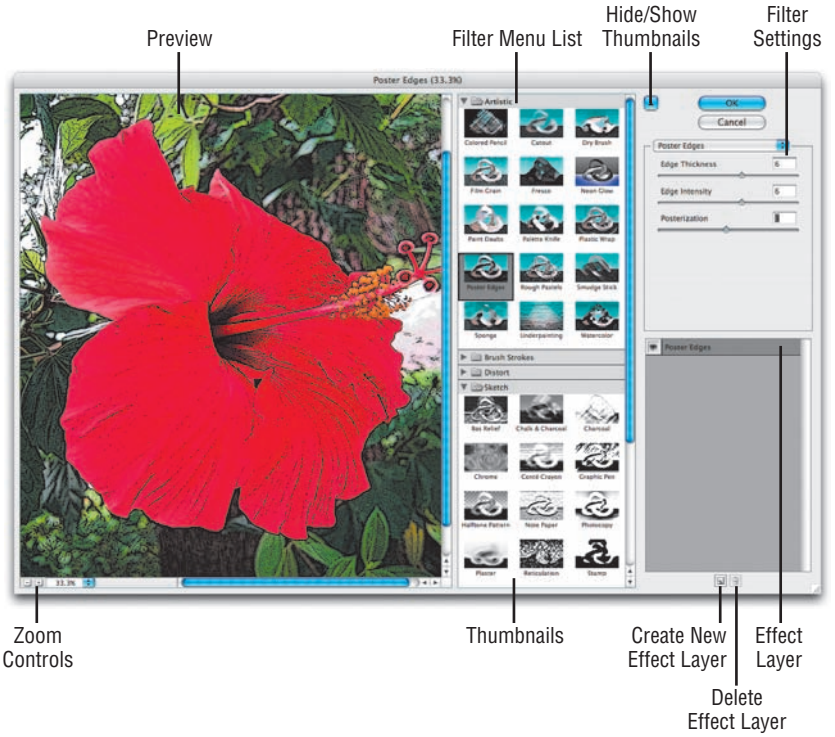


FIGURE 8.40
The Filter Gallery dialog box

Every time you open the Filter Gallery, a single effect layer is automatically created for you. Adding, deleting, and selecting effect layers in the Filter Gallery is similar to working with layers in the Layers palette (see Chapter 7). To add an effect, you must first create an effect layer by clicking the Create New Effect Layer icon at the bottom of the dialog box. Doing so duplicates the currently selected layer and positions it at the top of the effect layer stack. You can select an effect layer by clicking it, just as you would in the Layers palette; the only difference is that you can select only one effect layer at a time. The currently active effect layer is always highlighted gray (see Figure 8.41).

To delete an effect layer, select it from the stack and then click the trash icon at the bottom of the dialog. Note that you cannot drag an effect layer to the trash as you can when deleting layers in the Layers palette.

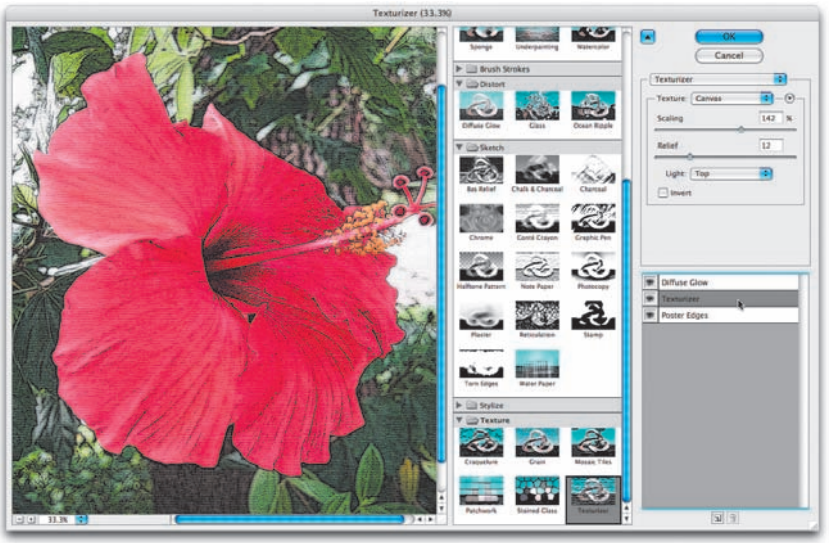


FIGURE 8.41
Photoshop highlights the currently selected effect layer in gray.

DELETING ALL THE EFFECT LAYERS AT ONCE

To delete all the effect layers at once, hold down ⌘/Ctrl to convert the Cancel button into a Default button. Then with ⌘/Ctrl held down, click Default to delete all the layers. Click the Create A New Layer icon at the bottom of the dialog box to try some different effects.

You can choose which filter to apply to a selected effect layer by clicking on a thumbnail from the filter menu list. Click a folder (or the right-facing arrow to the left of it) to display all the thumbnails in the filter set. Different filters contain different options. As you click thumbnails in the menu list, the settings to the right of the dialog change dynamically to display the available options for the chosen effect. You can adjust the settings as needed to fine-tune the applied filter effect.

To add more effects, click the Create New Effect layer icon and click a different thumbnail from the menu. As you adjust the settings for added effect layers, notice how they interact with the settings applied to the effect layers positioned below. Repositioning the order of the layers can produce different results. Applying these filters by using effect layers in the Filter Gallery is the only way to get them to interact in this way. Applying them separately without using effect layers does not produce the same effect.

Except when the Filter Gallery effect is being applied to a smart object, you can adjust the effect layer settings only *before* clicking OK to close the dialog box. Unless you're working with a smart filter, you cannot make further adjustments to the effect layers after the dialog is closed.

Photoshop always remembers the last applied settings every time the Filter Gallery is opened, no matter whether it is applied to a smart object or a regular image layer.

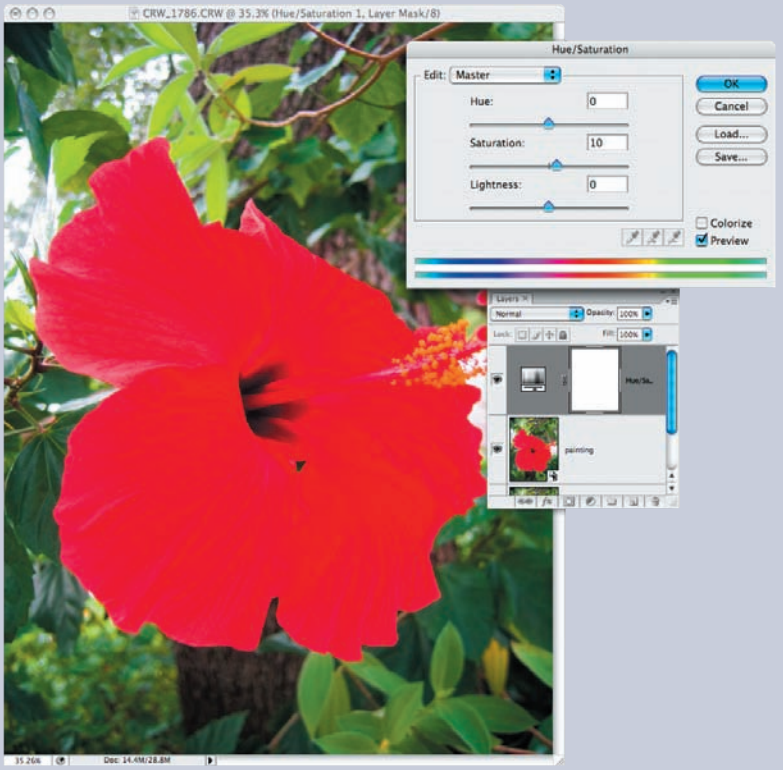
Real World Scenario

Filter Gallery Oil Paint Effect

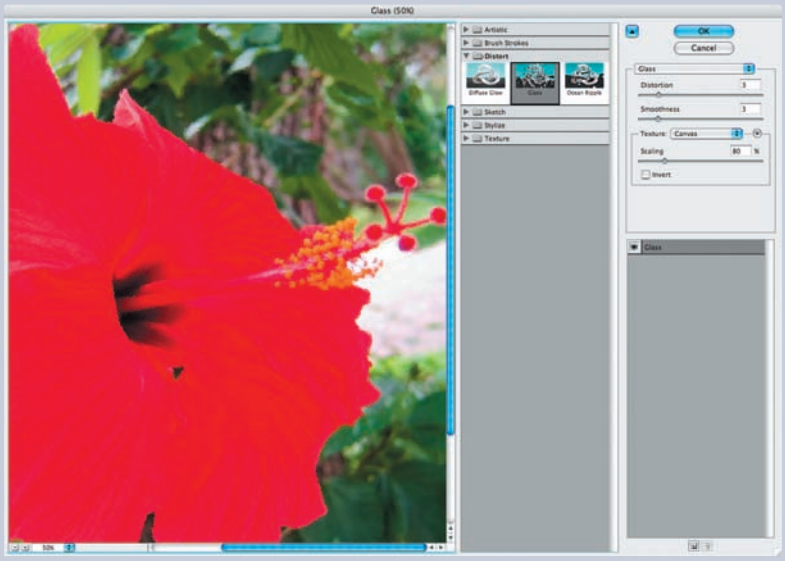
The following steps illustrate how you can use the Filter Gallery to convert a four-color print image into a digital oil painting. This is a great effect for adding a natural media look to a print design or layout, and there is absolutely no brushwork required. Except as specifically noted, the settings here should work with any high-resolution image. The image used in this example (CRW_1786.CRW) is available in the chapter 8 folder on the companion CD.

1. Open the flattened image that you would like to convert into a digital oil painting. After the image is opened, duplicate the image layer by pressing ⌘/Ctrl+J. Rename the layer **painting**. Now convert the duplicate image layer into a smart object by choosing Filter ➢ Convert For Smart Filters, and then click OK to bypass the warning dialog box. Converting the image into a smart object allows you to apply the Filter Gallery effect as a smart filter. This gives you the freedom to make changes to the filter settings even after the effect is applied—a pixel-safe procedure that is very similar to working with adjustment layers.

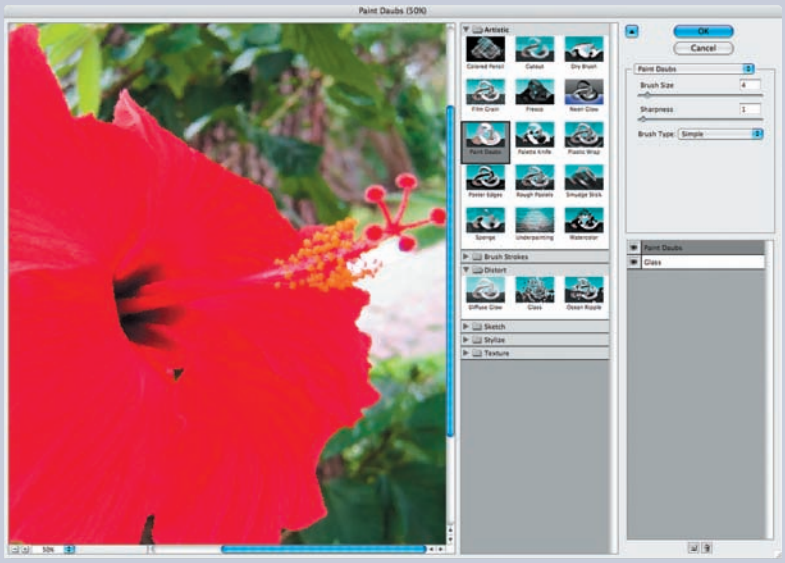
2. The first tweak this effect requires is to increase the saturation. In the Layers palette, click the adjustment layer icon and choose Hue/Saturation from the list. In the dialog box, drag the Saturation slider to the right to increase the value and make the colors appear much more vivid. The amount of increased saturation you should apply depends on the image. If the image already contains bright colors, increase the saturation level only slightly (in the example shown here, the saturation level needs to be raised only to 10). If the image does not contain bright colors, increase the Saturation level to about 50 or higher. Remember, if you should accidentally over- or undersaturate the image, that's OK, because this is an adjustment layer, and you can always change the saturation setting *after* the Filter Gallery painting effect is applied. Click OK to close the dialog.



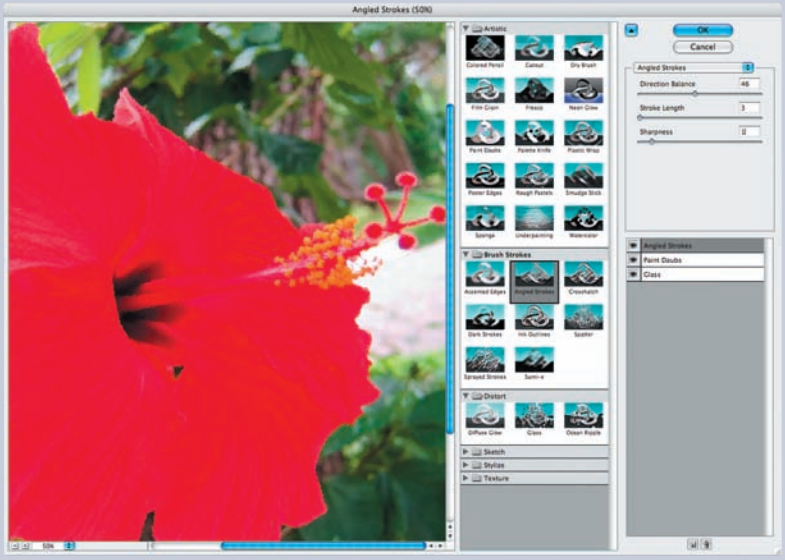
3. Now you can apply some filters to the smart object layer. Press Option/Alt+[to select the smart object painting layer. Under the Filter menu, choose Filter Gallery. In the Filter Gallery dialog box, adjust the preview zoom amount and image positioning accordingly. Click the Distort set to access the Distort filters, and select the Glass thumbnail. Set the Distortion amount to 3, set the Smoothness to 3, choose Canvas from the Texture pop-up menu, and set the scaling to 80% (as shown here). Don't click OK yet.



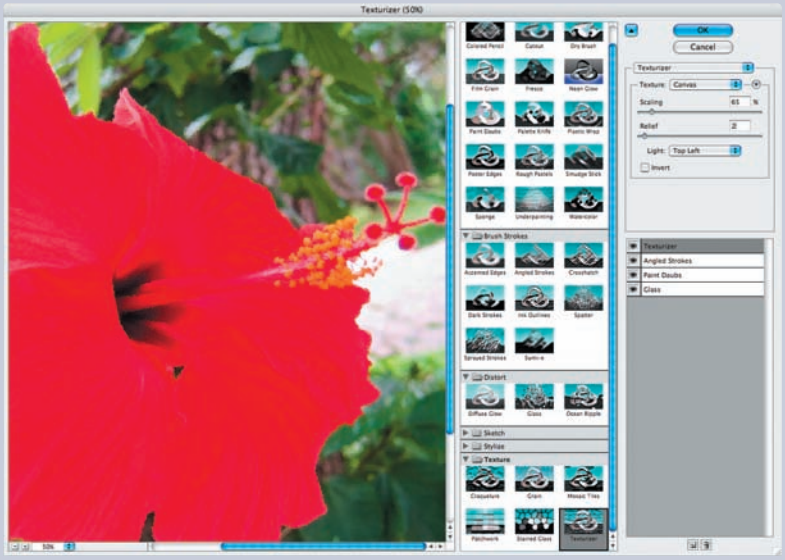
4. At the bottom of the Filter Gallery dialog box, click the New Effect Layer icon (next to the trash icon). After you click the icon, a new effect layer containing the same filter effect as the initial layer is added to the top of the list. To change the filter effect that is applied to the new layer, click the Artistic set and then click the Paint Daubs thumbnail. Set the Brush Size to 4, Sharpness to 1, and for Brush Type choose Simple (as shown here). We're still not done yet, so don't click OK.



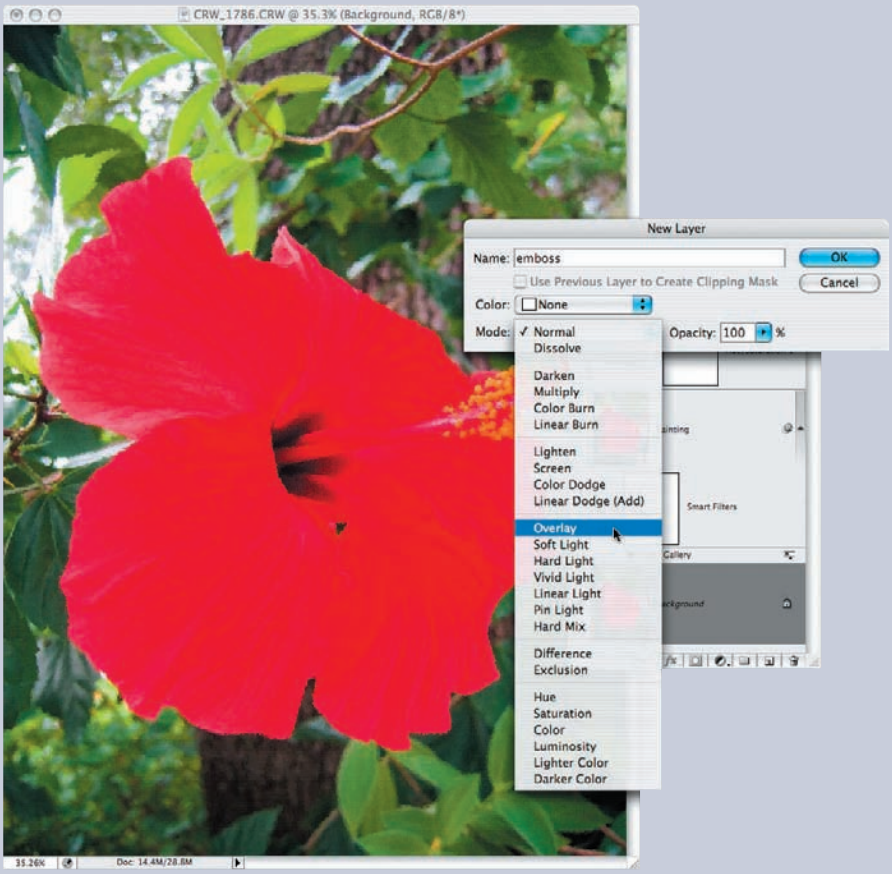
5. Click the New Effect Layer icon again to add another layer to the top of the list. This time click the Brush Strokes set and then click the Angled Stroke thumbnail. Set the Direction Balance to 46, Stroke Length to 3, and Sharpness to 1. Nope. Still not done. Don't click OK yet.



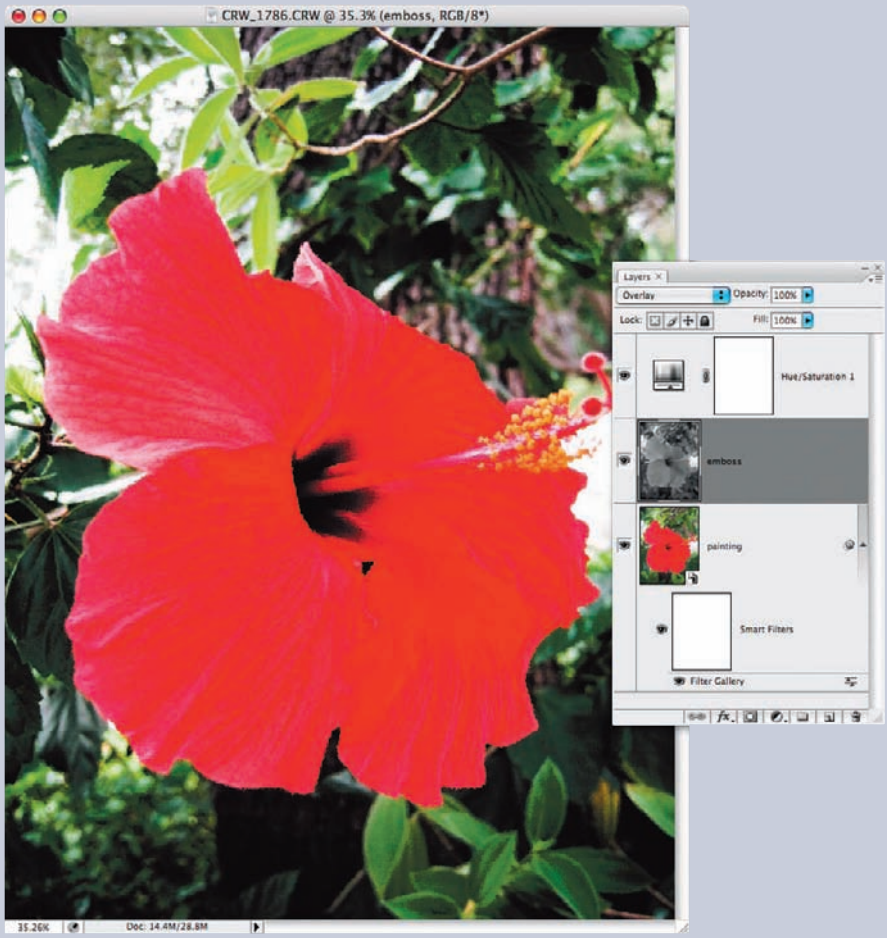
6. Click the New Effect Layer icon one more time to add a fourth layer. To add a canvaslike texture to the combined filter effect, click the Texture set and click the Texturizer thumbnail. Choose Canvas from the Texture menu, set the Scaling to 65%, set Relief to 2, and for Light choose Top Left from the pop-up menu. Now click OK to apply all four filters to the image.



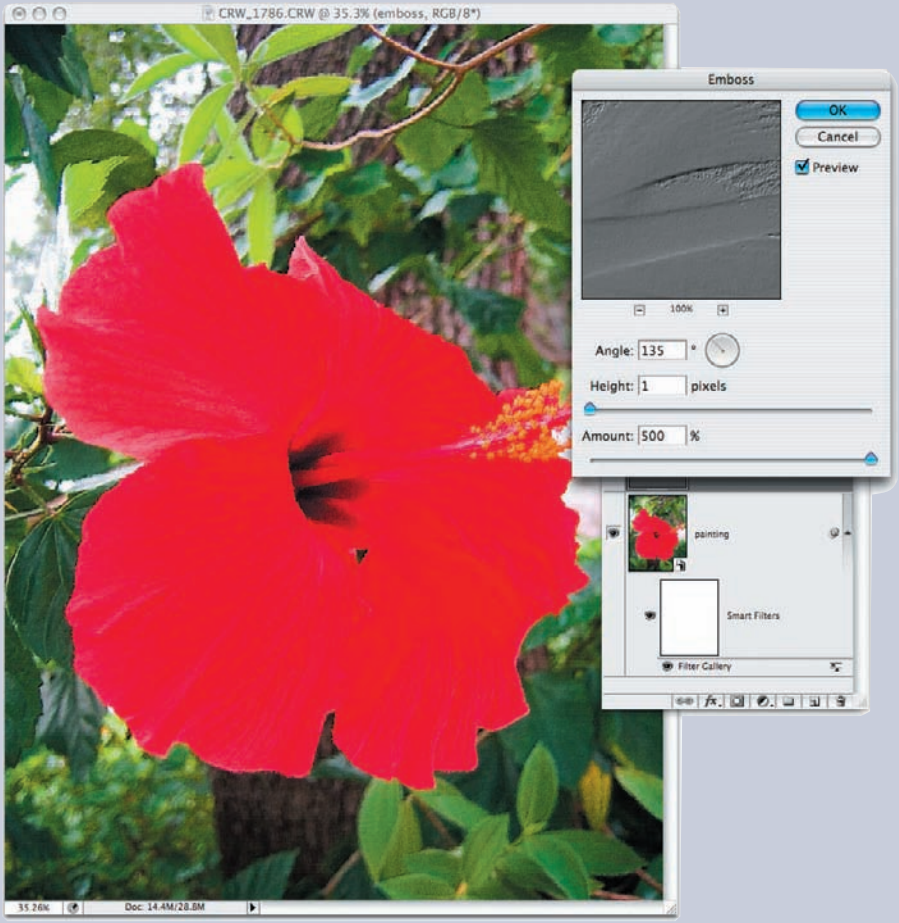
7. Double-click the Background layer (the original image) at the bottom of the Layers palette. In the New Layer dialog box that appears, rename the layer **Emboss** and change its blend mode to Overlay (for more on blend modes, see Chapter 7).



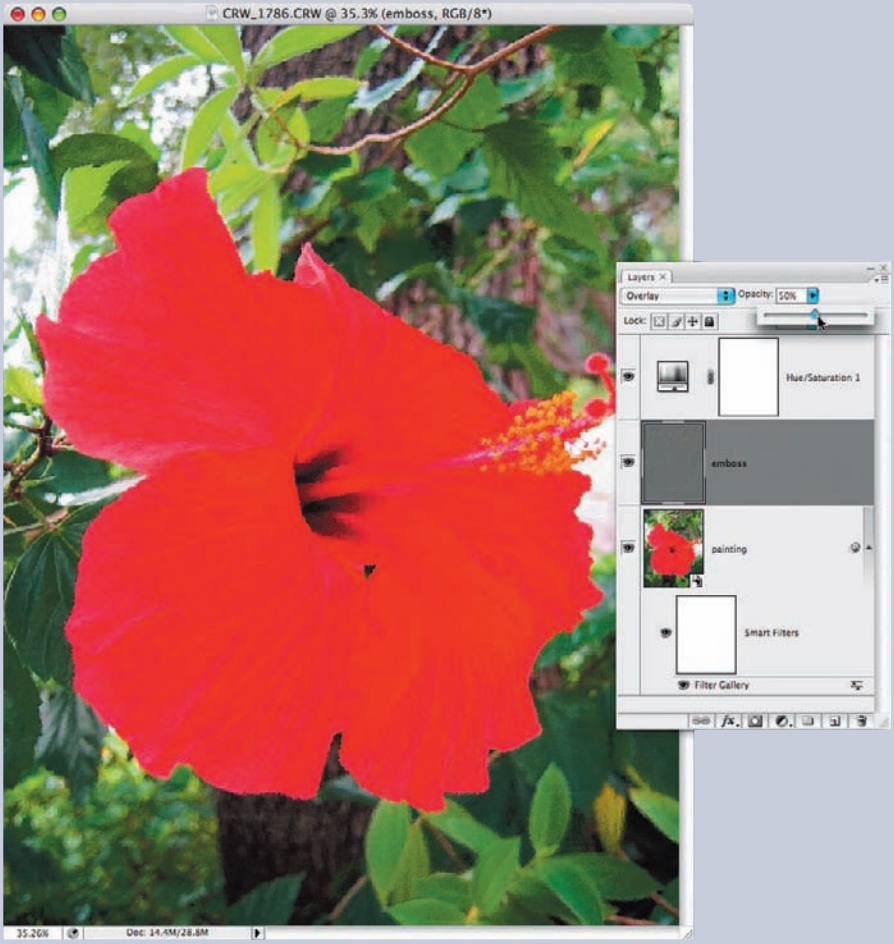
8. Press ⌘/Ctrl+] to move the layer up one position. The original image layer should now be positioned between the smart object layer and the Hue and Saturation adjustment layer in the Layers palette. Press ⌘/Ctrl+Shift+U to desaturate (remove all color from) the layer. The repositioned layer should now blend in and intensify the colors of the smart object painting layer positioned underneath it in the Layers palette, by darkening the darks and lightening the lights.



9. Choose Filter ➢ Stylize ➢ Emboss. In the dialog box that appears, set the Angle amount to 135°, the Height to 1 pixel, and the Amount to 500% (as shown here), and click OK.



10. Finally, lower the opacity level of the Emboss layer so that the impasto effect does not appear too severe. In some instances you may want the effect to appear more noticeable, but if you're looking for a more natural appearance, try setting it to 50% or lower.



The Bottom Line

Apply Layer Styles Unlike filters, layer styles allow you to edit applied effects dynamically without having to create a smart object version of the image layer first. This means that you can apply editable effects to a selected image, shape, or type layer without permanently altering any pixels. Because they work nondestructively, layer styles are referred to as *live effects*.

> **Master It** Select any type, shape, or image layer containing transparent or masked areas (including image layers converted to smart objects) and use any of the three methods described in the chapter to access the Layer Style dialog box.

Save Custom Styles The Styles palette in Photoshop allows you to save your favorite layer style combinations for later use.

> **Master It** Apply layer styles to a selected layer in the Layers palette by using the Layer Style dialog box. Choose Window ➢ Styles to display the Styles palette.

Apply "Smart Filters" to Your Print Images With Photoshop CS3, any of the default filters that are installed with the application are automatically treated as "live" effects when applied to smart objects. This means that you can now preserve the ability to edit most filters that are applied to smart objects. These "smart filters" behave very much like adjustment layers, allowing you to alter settings at any time after the effect is applied, without losing pixel data or compromising image quality.

> **Master It** To apply a smart filter, you must first convert the image layer into a smart object. To do so, choose Convert To Smart Object from the Layers palette flyout menu or from the Layer ➢ Smart Objects submenu. You can also choose Filter ➢ Convert For Smart Filters. After the layer is converted, Photoshop displays a Smart Object icon in the bottom-right corner of the layer image thumbnail in the Layers palette.

Create Eye-Catching Print Graphics with the Filter Gallery The Filter Gallery allows you to choose from a select group of filter effects and apply several of them to an image at once. Filter Gallery effects can also be applied to smart objects as a smart filter.

> **Master It** From the Layers palette, select the layer that you would like to apply a Filter Gallery effect to. Access the Filter Gallery by choosing it from the Filter menu or by choosing any filter that is handled by the gallery interface, such as the Artistic, Brush Strokes, or Sketch subsets.

Chapter 9

Reducing Noise and Sharpening

Noise reduction and sharpening are opposite sides of the same coin. Here we define *noise* as any unwanted non-image data, usually present in the form of patterns or fabrics that have been added to an image. The process of noise reduction attempts to mitigate or mute unwanted noise, which is defined by pattern elements that have edges. Sharpening does the complete opposite—it enhances any patterns, artifacts, or edges present in an image. Therefore, it is a good idea to eliminate any unwanted noise prior to sharpening an image.

In this chapter, you will learn to:

- Effectively remove digital capture noise
- Remove JPEG degradation
- Descreen scanned-in halftone patterns
- Sharpen images for high-resolution print output

Noise Patterns

There are numerous sources of noise. Three of the most common are as follows:

- Noise related to image capture (true noise)
- Compression-related noise (especially JPEG artifacts)
- Halftone-pattern (captured print screen artifacts) noise

Although these three common image patterns all have different origins, the process of removing them is similar. Unwanted noise can reduce the quality of an image by creating distracting patterns in the image. Nearly all unwanted image patterns can be removed, or at least significantly mitigated, by the application of smoothing or softening techniques that mask or disperse the unwanted patterns. Sharpening, by contrast, performs the exact opposite function: it serves to enhance rather than diminish any edges in an image, regardless of their source. In addition, the process of halftoning an image during printing can exacerbate patterns that already exist, so any unwanted patterns need to be effectively removed prior to sharpening or printing.

Printing, Screening, and Sharpening

The very process of printing an image tends to soften it. So when applying sharpening to a print-bound image, you will want to compensate for the softening to come. Printing involves the use of a halftone pattern, which can exacerbate any additional patterns that exist in your image. So on the one hand, printing can soften high-contrast edges, and on the other, it can make unwanted patterns worse. The take-home message is to remove any patterns or artifacts that you do not want, and then sharpen a bit more than you would for simple onscreen display.

Image Capture Noise

Unwanted patterns can result from several sources, with one of the most common being the noise added during digital image capture. Images can be captured digitally by using either a scanner or a digital camera. This digitizing process not only captures the image data but also adds non-image data to the captured image (Figure 9.1).

Figure 9.1
Capture noise: the graininess under the palm fronds is all noise.

Light-sensitive semiconductor capturing chips, either a charge-coupled device (CCD) or a complementary metal oxide semiconductor (CMOS), that are used in scanners and digital cameras are responsible for adding most of this kind of noise. Lower-quality chips have lower signal-to-noise ratios—that is, they add more noise to images than higher-quality chips do. In addition, forcing a digital camera to capture an image faster or at a higher speed, known as pushing (raising) the ISO or capture speed, will also add more noise to an image. The higher the ISO used by a capture device, the greater the amount of noise added. One additional characteristic of noise is that it

often tends to occur on certain channels more than others. This knowledge provides us with the opportunity to concentrate noise reduction efforts on the noisier channels.

Compression-Related Noise

Another kind of unwelcome pattern commonly found in images is a pattern generated by the application of lossy compression, of which JPEG is the most common. Lossy compression averages pixel values through interpolation. This interpolation process creates repeating patterns of averaged pixel values in JPEG images (Figure 9.2). This interpolation pattern results in both loss of image data and the posterization (creation of areas of similar-value pixels). The higher the degree of compression, the more severe the imposed pattern appears. Most digital cameras by default capture images by using at least a moderate degree of JPEG compression to allow users to store more images on their removable media. Higher-quality images will be created if this compression is avoided in the first place. However, if you receive images that have JPEG-related posterization patterns, you should remove them.

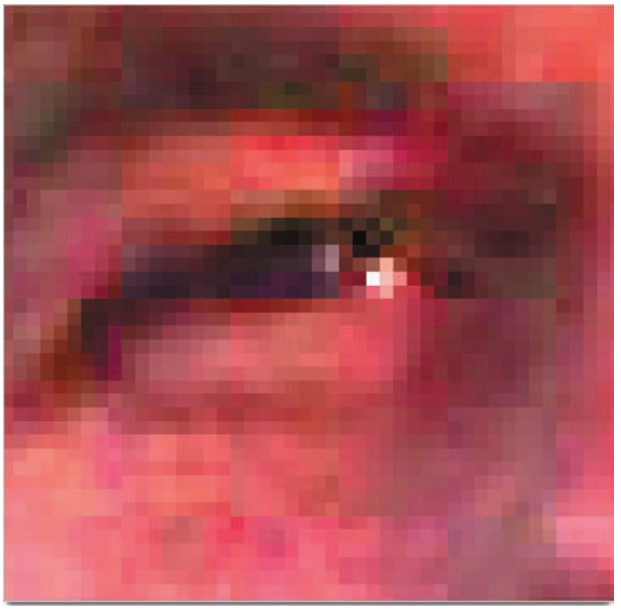


FIGURE 9.2
JPEG compression artifact noise: the poster pattern of squares in this image is the result of JPEG compression.

Halftone Patterns

Printed images are constructed out of patterns of halftone dots known as *screens*. If you scan a printed image, you will likely see this pattern of screened dots reproduced in your scanned image (Figure 9.3). If you then reprint this scanned image with the included halftone dot screen pattern, you will often produce a very visible and distracting reprint pattern known as *moiré*. This moiré pattern can be more obvious than the original pattern because of the complex interaction of the original printed screen with the new one. Removing the scanned halftone dot pattern is known as *descreening*. Like removing image capture noise and JPEG compression patterns, descreening images can improve the quality of your final printed image.

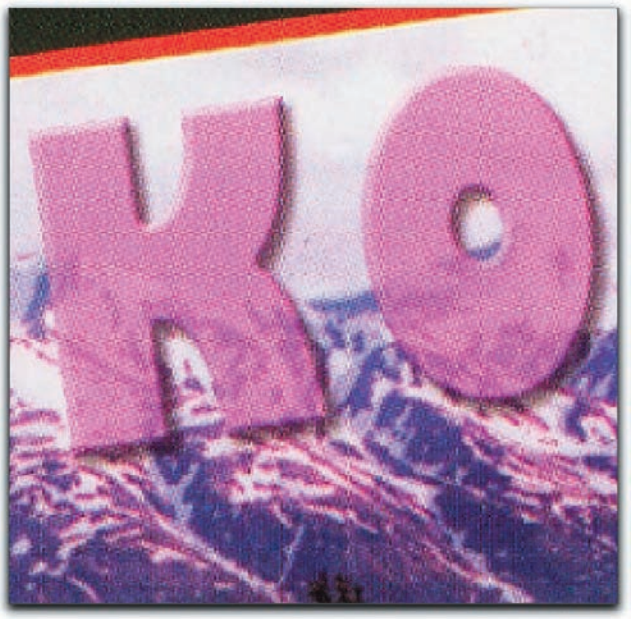


FIGURE 9.3
Scanned print screen: the square pattern is made up of a complex pattern of four-color halftone dots.

MOIRÉ PATTERNS AND PROOFING

If you are under the misconception that you can check to see whether a moiré pattern is going to be a problem by viewing a proof—think again! Unless the proof is printed on the same output device, using the same screen as your final print, the interaction of previous and current screens will not be the same. If your proof is printed on an ink-jet proofer, or other proofing device that uses FM (stochastic) screens, any potential pattern—moiré or other—will be masked by the random dot placement inherent in FM screens. Therefore, if your final print is produced with a standard AM halftone dot screen featuring regularly spaced halftone dots, your final output may be a big surprise!

If your proofing device uses an AM type of dot, you will likely see a moiré pattern on the proof but it will not be identical to the one produced during the final printing process unless the dot generation mechanism is indeed the same. This is why it is so critical to identify and remove screen patterns prior to going to press. Heck, even some image patterns such as herringbone patterns in cloth can create moiré on output. If you have any doubts about a pattern you recognize in an image, send in a test image to your printer so they can review and maybe even print it on the cut off side of another job, to evaluate the moiré potential. When in doubt, consult!

Sharpening

Focus (or sharpness) in a digital image is created and controlled by the amount of edge contrast that exists between adjacent pixels, especially along high-contrast edges. Soft-focus images have wider, lower-contrast edges within the image. Sharp-focused images have image elements with higher contrast and narrower edges.

Sharpening is basically an edge contrast enhancement technique. When you sharpen an image, you increase the contrast between its adjacent pixels. Sharpening also tends to narrow the amount of contrast along edges. Nearly all digitally captured images require at least some sharpening, because the very process of digital capture tends to be soft.

Figure 9.4 displays a portion of an image containing some boots with vertical stripes. The edges of these stripes represent high-contrast edges. Prior to sharpening, the edges are obvious but somewhat smooth. After sharpening, you will notice that the contrast between the pixels along the high-contrast edges is noticeably increased. This creates the impression of enhanced focus or sharpness. You will want to carry this focus or sharpness through to the printing process, because printing tends to soften each of these edges.

FIGURE 9.4
Higher-contrast edges before and after sharpening

Unlike noise, which is typically extra, unwanted data represented by a pattern, sharpening is considered an asset. However, sharpening can be your enemy if it is applied to noise in an image. Noise is often created by pattern elements that have high-contrast edges, and because sharpening tends to increase contrast along these edges, sharpening can exacerbate the noise and its unwanted patterns in your image. Because of this potentially damaging process, one of the early investigations you should make into any image correction workflow is to inspect for any unwanted noise that should be removed prior to sharpening.

There is one other big difference between noise reduction and sharpening. Mitigating noise, which usually involves some sort of smoothing process, tends to increase the number of intermediate tonal values present in an image, whereas sharpening tends to decrease the number of tonal values. Because of this difference, you should employ noise reduction near the beginning of your workflow, because noise reduction will provide you with more tonal values with which to accomplish your image-editing and color-correction chores. Sharpening conversely should typically be applied at the very end of your imaging workflow, because the process of sharpening tends to decrease the tonal values in your image. In fact, I recommend that you save unsharpened, color-corrected and edited versions of your image as archive images from which you can create sharpened copies for various purposes.

Not All Sharpening Tools Are Created Equal

Photoshop CS3 offers five tools specifically for sharpening: Sharpen, Sharpen Edges, Sharpen More, Smart Sharpen, and Unsharp Mask. These can all be accessed under the Filter ➢ Sharpen submenu (Figure 9.5). It's also possible to use other Photoshop CS3 functions—notably, the

Reduce Noise tool, which offers some included sharpening functions, and the use of High Pass, Maximum, and Minimum filters to help control the application of sharpening

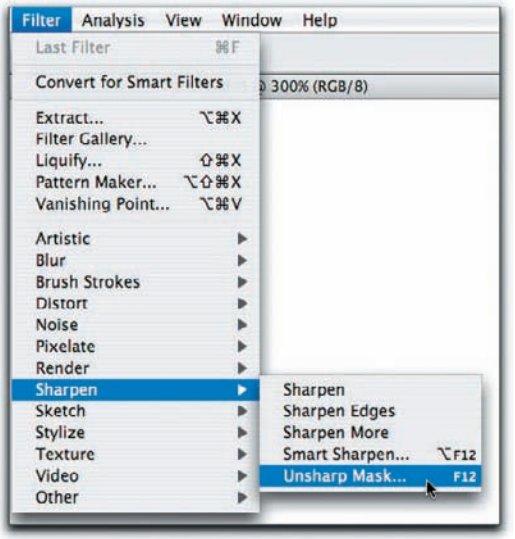


FIGURE 9.5
Photoshop CS3 sharpening filters

Among the sharpening techniques listed under Filter ➢ Sharpen, you will want to focus on using Unsharp Mask and Smart Sharpen, because these two methods allow you to control how and where sharpening is applied in an image. When an image is softened during image capture, the high-contrast portions of the image are softened more than the low-contrast areas. So it makes sense that when you apply sharpening to an image, you will typically want to concentrate the sharpening on the high-contrast edges, while applying less sharpening to the lower-contrast areas. For instance, when sharpening a close-up image of someone's face, you will typically want to sharpen the higher-contrast edges, such as the hair, lips, eyes and teeth, while applying less sharpening to the low-contrast areas of the skin. Applying too much sharpening to low-contrast areas can create unwanted mottling in those areas.

SMART SHARPENING VS. UNSHARP MASK VS. REDUCE NOISE

With the arrival of Smart Sharpen in CS2, some Photoshop experts predicted the death of the Unsharp Mask filter. Despite their predictions, there are practical uses for both tools when working in print design and production. You will find that both tools work well with a wide range of images:

- For images where you would like to control the effect of sharpening based on contrast, you will find that the Unsharp Mask tool is still very useful.
- In those images where you have critical highlight and shadow values, and particularly those where you want to apply a large amount of sharpening, the Smart Sharpen tool is unparalleled!

- When the sharpening demands are increased, and you want to more precisely control the location of sharpening in your image, you can use some tried and true edge-recognition and enhancement techniques to help you control your sharpening.
- And then of course there are the sharpening functions (Sharpen and Preserve Details) found in the Reduce Noise filter, that you might use in conjunction with a noise reduction process. This is a handy tool to use when you are smoothing images, and in images without critical highlights or shadows and/or without special sharpening needs. With images that do not have critical sharpening requirements, you will likely find the Reduce Noise detail enhancement/sharpening controls adequate, or at least useful enough to provide you with a good first step. You can always start with the Reduce Noise sharpening functions and fine-tune later by using either Unsharp Mask or Smart Sharpen.

Let's go through a few sharpening examples to see how to use the various sharpening specific tools and techniques.

Unsharp Mask

For many years the Unsharp Mask tool has been the mainstay of sharpening in Photoshop, and while it is not as sophisticated a tool as Smart Sharpen it is still useful and especially as a global sharpening tool.

1. From the companion CD, open and make a copy of the Lavender Flower_Orig image; name the copy Lavender Flower_Sharpened.psd (Figure 9.6). This image is has no critical highlight or shadow areas to worry about blowing out or plugging in, so this is image is a good candidate for using the Unsharp Mask tool without fear.

FIGURE 9.6
Lavender Flowers

2. Set the view of this image to 100% (Cmd+Option+0/Ctrl+Alt+0). Even if you zoom in to view edges and details while trying various sharpening values, always view your image at 100% when making final sharpening judgments because other percentage views will not provide an accurate view of the impact of the sharpening (Figure 9.7).

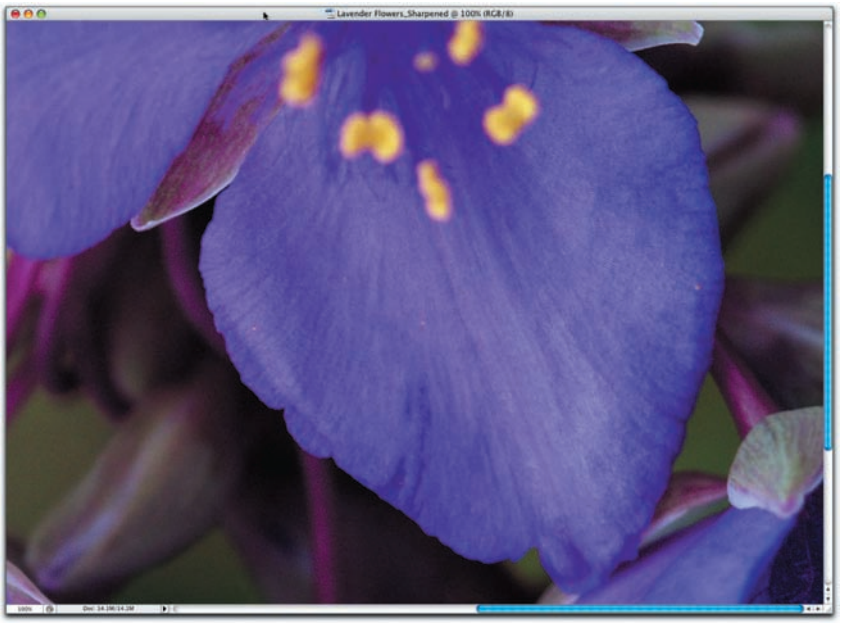


FIGURE 9.7
Image zoom and view

3. Duplicate the background layer and name it USM. As always, I suggest keeping and placing the original image on screen in the upper left corner to use as an unaltered reference image. I still like to create a sharpening layer(s) so I can try options and easily turn their views off and on.
4. Position the image within its window so you can see an entire petal, some of the yellow stamens, and some background as well so you can monitor the impact of the sharpening on all the various image elements.
5. Choose Filter ➢ Sharpening ➢ Unsharp Mask to activate its dialog (Figure 9.8).
6. You will want now decide how much Amount Radius and Threshold to apply to this image. A standard starting place for good quality image would be Amount 100%, Radius 1, and Threshold 0.
   - The **Amount** will control (in %) how much increase in contrast will occur between lighter and darker pixels. Higher values will create greater sharpening effects. Values range from 75% for low quality web images to 300% for high quality print images.
   - The **Radius** controls the width (in pixels) of what will be evaluated and adjusted during sharpening. Higher values create thicker sharpened edges. Values are usually resolution dependent and range from 0.5 for low resolution web images to 2.0–2.5 for high resolution print images. Starting values can be determined by this formula: image resolution divided by sharpening amount, such as 300ppi ÷ 200 = 1.5.

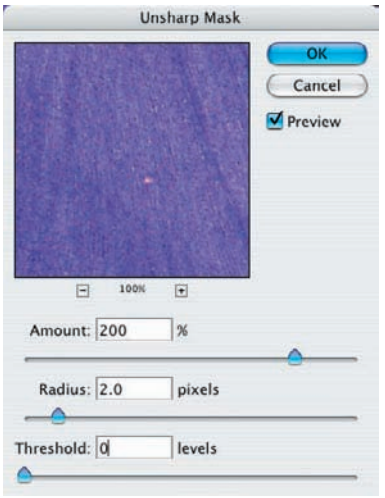


FIGURE 9.8
Unsharp Mask dialog

- **Threshold** specifies (in grayscale values) the difference in grayscale value that must exist between two pixels before sharpening (contrast increase) will be applied to those pixels. You can use this Threshold value to protect smoother/lower contrast areas of your image from sharpening. Higher values equate to more protected areas. I may use Threshold to prevent smooth image areas, like skin tone areas, from acquiring graininess during sharpening, and particularly when I apply large Amount and Radius values. Values range from 1 to 5 depending upon how much of the image you want to protect from sharpening. Note: This is typically not an effective tool for preventing highlight blowing out and shadow plugging because this is not a tonal range–based sharpening control. (See the next Smart Sharpen example for this type of control.)

This is a high quality image with lots of image data, so if you choose to you can apply a significant amount of sharpening without the image showing any ill effects such as halos or pattern creation. Besides the standard starting values mentioned above, there is not one "right" answer to these three values. Here I apply an Amount = 200, Radius = 2, and Threshold = 0. I chose a larger than standard amount because I wanted the details of the leaves to really pop out. With images like this you can go as high as 300%. Amount values above 300% often create halos and graininess especially if you apply no Threshold. If I wanted to protect the smoothness of the interior of the petals and/or I saw some graininess developing in the out of focus background, I might apply a Threshold value of about 1–3 to accomplish this; I chose not to here.

7. Now rename this sharpened layer "USM 200_2_0" to indicate the type and values for the sharpening you applied. Create several different labeled sharpened layers with various values and compare your results to see the impact of changing the three variables. And don't be afraid to zoom in to watch the results at the pixel level (I learn all sorts of stuff doing that!), but always return to the 100% view to make your final evaluation. Note: I tend to oversharpen a bit for print, as some of the sharpening inevitably is lost during the RIPping and screen process, and undersharpen a bit for the Web, because compression tends to raise Cain with high contrast sharpened edges.

8. When you finish with your image (Figure 9.9), make a copy of the image, activate the layer you like best (turn off the rest) and flatten the image to remove its layers.

FIGURE 9.9
Sharpened image

This type of image—with lots of data but no critical highlights and shadows that may or may not have low contrast areas you want to protect—will respond well and produce good sharpening results from the use of the Unsharp Mask tool. For images like these Unsharp Mask is an easy and fast dialog box to control to produce good results. In the next exercise we will look at an image that is made better by using Smart Sharpen.

Smart Sharpening

The other preferred sharpening tool in Photoshop is Smart Sharpen. Like Unsharp Mask, Smart Sharpen offers Amount and Radius adjustments to control how much sharpening is applied. But Smart Sharpen takes a different, more sophisticated approach to controlling where the sharpening is applied and provides some interesting bells and whistles to boot. Smart Sharpen provides both tonal range and fade controls to specify where the sharpening is applied in an image. These two controls provide far more subtle control of sharpening than does Unsharp Mask.

The advantages of using Smart Sharpening are perhaps most apparent when sharpening images that have critical highlight and/or shadow values that you do not want to blow out or plug up by applying sharpening. Unlike the Threshold value that Unsharp Mask utilizes, which does not allow you to target the sharpening that is applied in a specific tonal range, Smart Sharpen allows you to modify the Sharpening in both the highlight and shadow areas without decreasing the sharpening amounts in other tonal areas. Here is a good example of where Smart Sharpen allows you to apply a significant amount of sharpening to an image filled with critical highlights:

1. Open and make a copy of the Winter Frosting_RGB_300 image (Figure 9.10). This image is packed with critical highlight areas. There are small specular areas that have no detail that

add punch to the highlight. The danger is that if sharpened, the diffuse highlights with values in the 240s will be pushed into the specular area (250+) and lose critical detail. It is in this scenario where smart Sharpen really shines.

FIGURE 9.10
Critical highlights image

2. Zoom in on an area that contains several examples of diffuse highlights with RGB values in the low- to mid-240s (good diffuse highlight values that will show detail).
3. Display the Info palette by choosing Window ➢ Info. Using your Color Sampler tool, place two color sampler points in the image that record these critical highlight values in the low- to mid-240s. You will see two color sampler points placed in the bottom of your Info palette (Figure 9.11). You will use these to monitor your critical highlight values as you apply sharpening. (See Chapter 6 for more-detailed instructions on using the Color Sampler tool.)

FIGURE 9.11
Critical highlight color sampler points

4. Choose Filter ➢ Sharpen ➢ Smart Sharpen to activate the Smart Sharpen dialog box. The Smart Sharpen Basic mode dialog box appears (Figure 9.12).

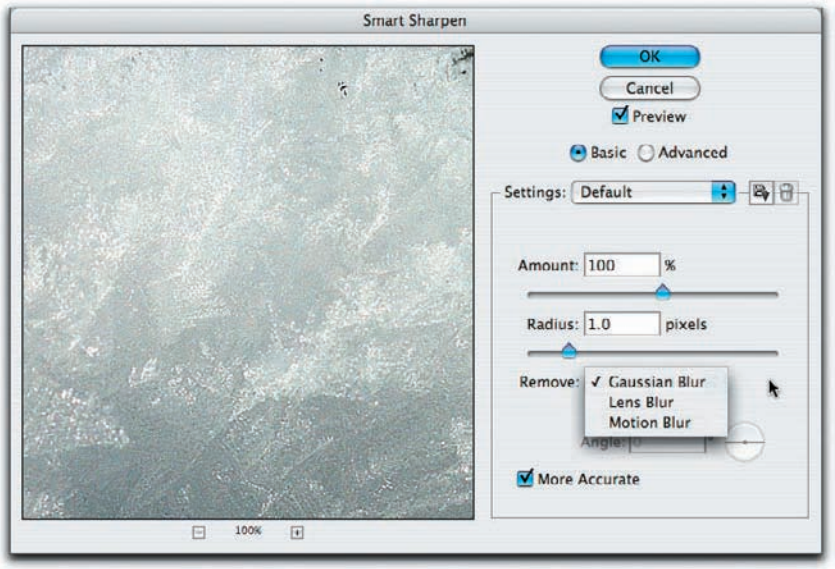


FIGURE 9.12
Smart Sharpen Basic mode dialog box

In addition to the familiar controls of Amount and Radius, there is also a Remove menu that can be used to mitigate specific types of blurs, such as Gaussian blur, lens blur, or motion blur, the latter of which allows you to specify an angle of motion. There is also a More Accurate check box, which is kind of misnamed. Typically you will want to leave this unchecked as checking it will apply sharpening to a greater portion of your image than you might intend, such as noisy pixels in your image; test this on your images, but normally leave this off and especially when sharpening noisy images.

5. Assign typical starting values of Amount = 100, Radius = 1.

6. Make sure the Preview option is enabled. Now view the RGB values of your color sampler points in the Info palette (Figure 9.13). You will see that with the application of 100% sharpening, these critical highlight values are now blown out in the 250s—not good!

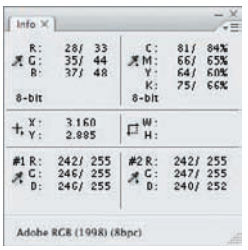


FIGURE 9.13
Info palette showing blown-out highlights

7. To mitigate these blown-out critical highlight values while still applying the same amount of sharpening overall, click the Advanced button. Shadow and Highlight tabs appear (Figure 9.14).

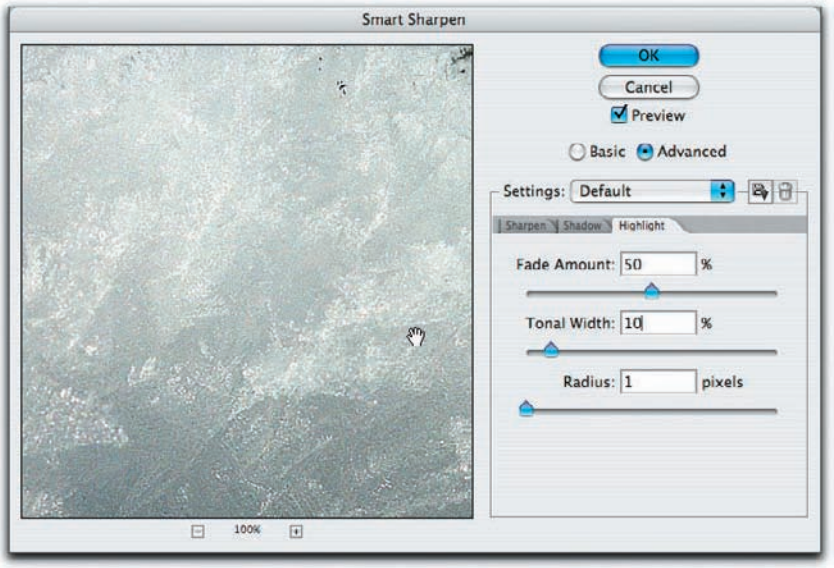


FIGURE 9.14
Smart Sharpen Advanced mode dialog

8. Click the Highlight tab. Three value fields appear: Fade Amount (%), Tonal Width, and Radius. Assign the following values:

Setting	Value	Notes
Fade Amount	50%	Start with 5 and work up in 5% increments while you watch the color sampler points on the Info palette.
Tonal Width	10%	This controls the width in tonal range over which you will apply the Fade Amount. Because you want to fade only the highlights, you should assign a narrow value here.
Radius	1	Typically, you should set the same radius value here as you would in the sharpening field.

These values should lower the RGB values for the color sampler points back down into the more acceptable 240s range, while applying the full amount of sharpening to the remainder of the image (Figure 9.15).

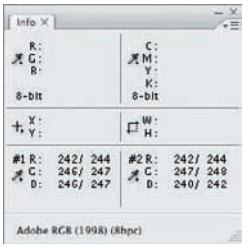


FIGURE 9.15
Adjusted Info palette color sampler points

9. After you set your initial values, you can fine-tune the relationship between Fade Amount and Tonal Width to achieve just the results you want. Higher Fade Amount values reduce the effect of the sharpening. Larger Tonal Width percentages apply the fading to larger tonal areas of the image. Note: This same type of sharpening can be applied to critical shadow areas as well, if the image composition demands it.

Unsharp Mask vs. Smart Sharpening Revisited

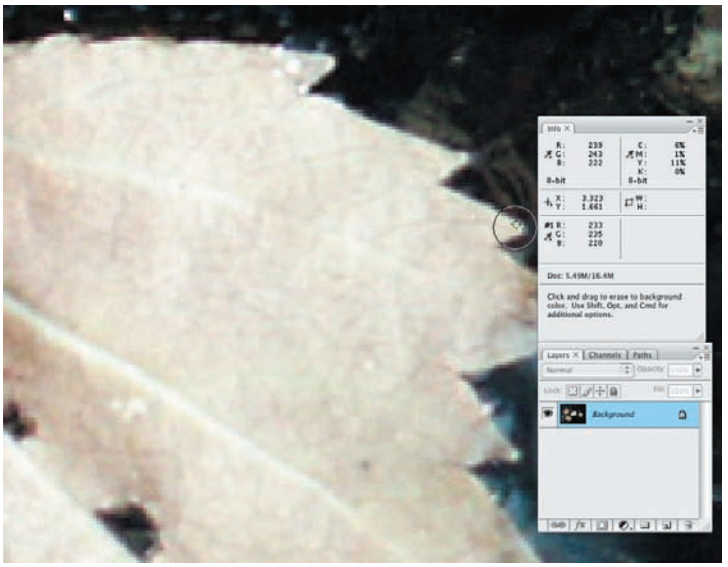
Now to clearly illustrate when using the Smart Sharpen tool will provide a definite advantage, let's compare applying Unsharp Mask and Smart Sharpen to the same image.

1. Open and make a copy of the Leaves in Ice_RGB image; name the copy Leaves in Ice_RGB.psd (Figure 9.16). This image has a wide range of grayscale values: some obvious lighter leaves suspended in ice, which comprises a dark background. We would like to apply a large amount of sharpening to really emphasize the edges of the leaves suspended in the hard transparent ice.

FIGURE 9.16
Leaves in Ice image

2. To help make my point we will place a Color Sampler point along the edge of one of the leaf edges in order to monitor its RGB values during sharpening. Select the Color Sampler tool (the second Eyedropper tool). Also activate the Info panel (Window ➢ Info or F8) and place it where you can monitor it at all times. Also activate the Layers panel (Window ➢ Layers or F7), as shown in Figure 9.17.

FIGURE 9.17
Sampler point setup



3. Zoom in on the left edge of the lightest colored/middle leaf. Click with the Color Sampler Tool to place a Color Sampler point on the edge of the leaf. This will be labeled with a #1 both on the Color Sampler point and in the Info Panel. Note the initial RGB values recorded in the Info Panel (233, 235, 220) These are all printable values.
4. Make a duplicate of the background layer and name it USM 200_1.5_0.
5. Choose Filter ➢ Sharpen ➢ Unsharp Mask to activate its dialog.
6. Apply the following values: Amount = 200, Radius = 1.5, Threshold = 0.
7. Now view the RGB values of the Color Sampler point (Figure 9.18). They now measure 255, 255, 255. All three values have been blown out and are not printable. And the only way to reduce these values is to reduce the Amount and/or radius of sharpening applied.
8. Now create another duplicate of the background layer and name it SS 200_1.5.
9. Choose Filter ➢ Sharpen ➢ Smart Sharpen to activate its dialog.
10. Click the Advanced button and click the Sharpen tab. Apply the following values: Amount = 200, Radius = 1.5 (Figure 9.19).

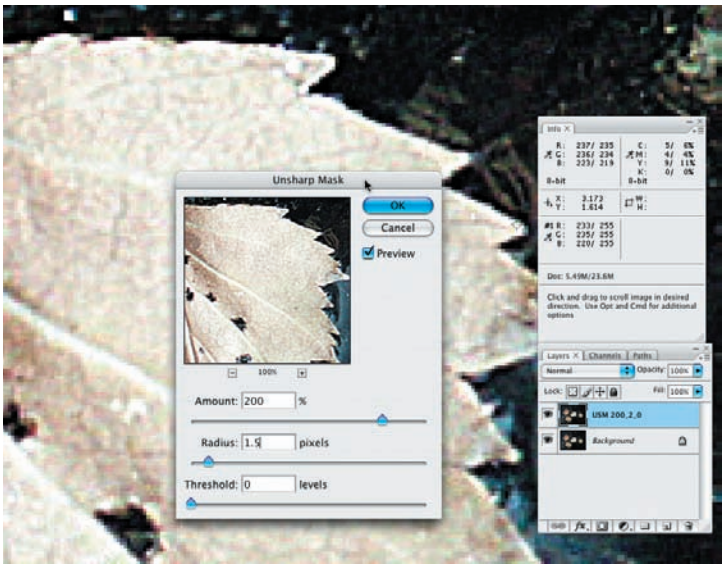


FIGURE 9.18
Unsharp Mask setup

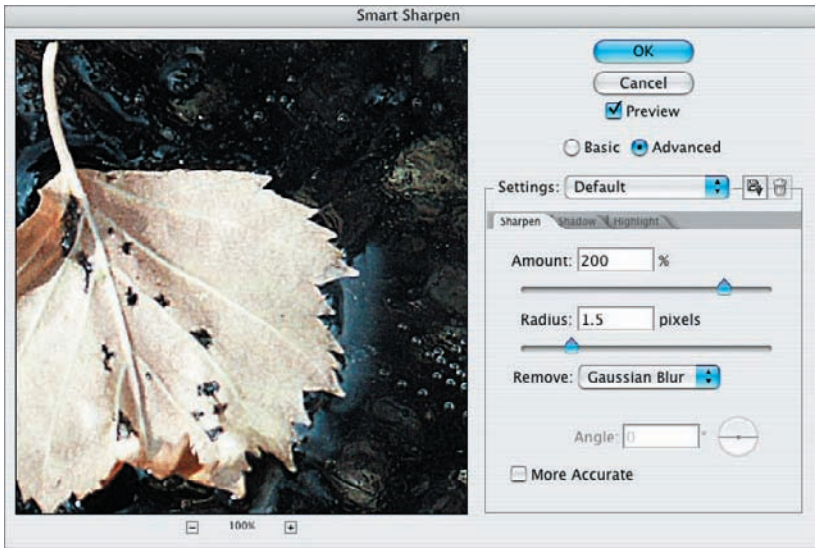


FIGURE 9.19
Smart Sharpen setup and results

11. Click the Highlight tab. In the Fade field type in 15%. Also type in 15% in the Tonal Range field. Leave the Radius = 1. While you type in these values, monitor the RGB values of the Color Sampler point. Note the resulting RGB values have now been reduced from (255,255,255) to (246,247,237), far more acceptable and printable values. We have used the Highlight tab values to rescue the impact of the sharpening along the edge of the leaves, which were previously blowing out, without having to reduce the overall sharpening values of Amount = 200, Radius = 1.5.

The values you will use in these fields will depend upon your goals. Here our goals were to limit the sharpening effect along a very narrow tonal range, the light pixels along the edge of the leaves. So we used a combination of small values (there are a range of Fade and Tonal Range values that could work here). Here is an overview of the three value fields.

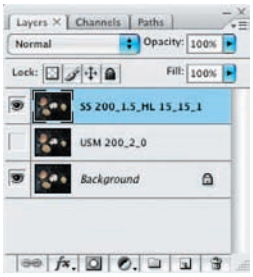
Fade Percentage of reduction, or fade, which will occur from the values created by the Amount and Radius settings applied in the Basic dialog.

Tonal Range The range of tonal values that will be affected by the Fade percentage.

Radius The width, in pixels, of the number of pixels that will be evaluated and affected. I typically set this close to the Radius value set in the Basic dialog. This field is limited to whole pixel values, so I would choose either 1 or 2 here because the Basic field Radius = 1.5. I use the lower value here because my intent was to limit the distribution of the amount of Fade. If you want to remember the values you used, update the name of this layer to include your values.

12. Alternately, activate your Unsharp Mask and Smart Sharpen layers and view the RGB vales of the Color Sampler point. Experiment with several layers with different sets of field values to see the impact of various value sets (Figure 9.20). You will likely find you will fine tune the combination of Fade and Tonal Range to achieve the result you like.

FIGURE 9.20
Sharpening results



You can see why many have abandoned Unsharp Mask in favor of Smart Sharpen. But you can also see that using the Smart Sharpen method is a bit more complicated. So if you have an image that only requires a global set of sharpening vales, Unsharp Mask is still a useful production tool.

Now, keep this Leaf in Ice image open. In our final section on sharpening tools and techniques we will explore how to use selections, masks, and filters to control the distribution of sharpening in an image.

Finding and Using Edges to Control Sharpening

Sometimes even the tonal range controls of the Smart Sharpen tool don't apply the sharpening to just where you want. In this case you can use selections and masks along with High Pass, Maximum, or Minimum filters to help you selectively apply your sharpening.

1. With the Leaves in Ice_RGB_Sharpen image still open, turn off the visibility of all the sharpening layers you have created. Then create a new duplicate layer of the original Background image. Name the layer High Pass.
2. Active the Channel panel and duplicate the channel that contains the image elements you would like to sharpen most. Here the leaves and some of the ice edges stand out in highest contrast; here it is the Red Channel. This will create a fourth channel named Red Channel Copy. Now, the following two steps can all be perfomed on this new fifth channel, but I will create separate channels just to keep the steps straight.
3. Duplicate the Red Channel Copy to create a fifth channel, and name this Find Edges. Then Choose Filter ➢ Stylize ➢ Find Edges. This will create a channel with high contrast edges (Figure 9.21).

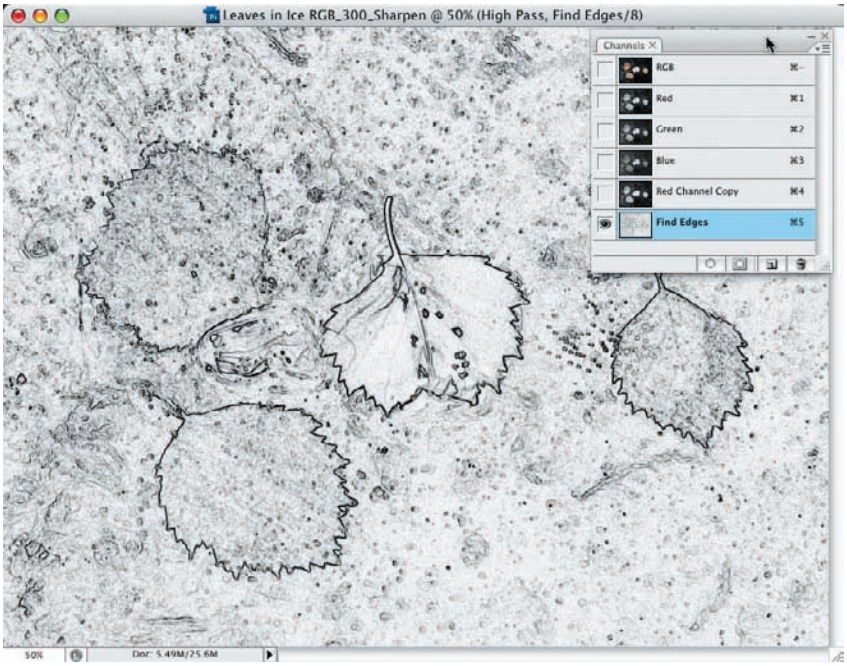


FIGURE 9.21
Find Edges channel

4. Again Duplicate this channel to create a sixth channel, and label it Find Edges_Invert. Then choose Image ➢ Adjustments ➢ Invert (Cmd+I/Ctrl+I) to reverse or invert the black and white values (create a negative image). This step is done to convert the high contrast edges into white values that can be loaded as a selection (Figure 9.22).

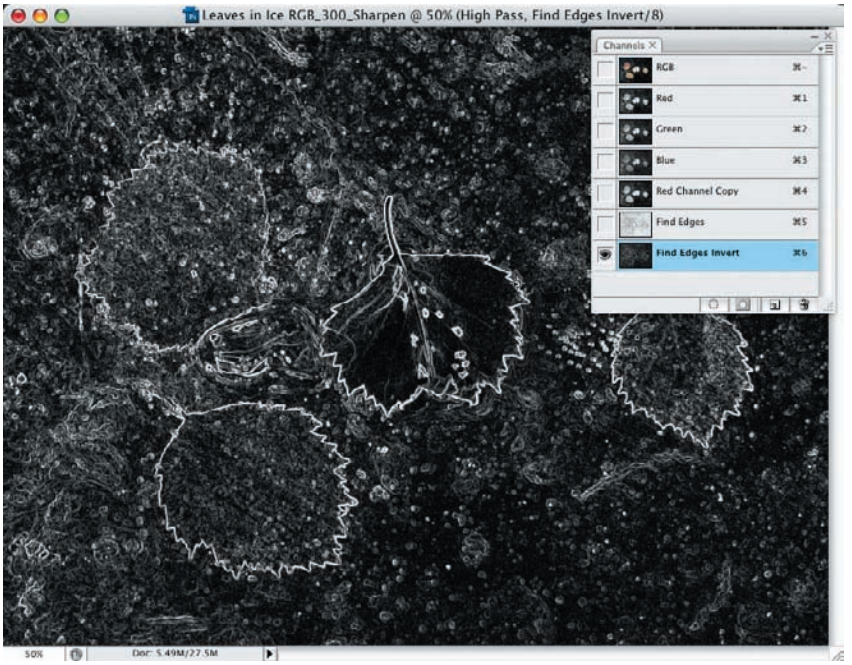


FIGURE 9.22
Find Edge channel inverted

5. Once again duplicate this Find Edges inverted channel and name it High Pass. Then choose Filter ➢ Other ➢ High Pass to activate its dialog (Figure 9.23). The radius value you choose here will depend upon the contents of your image and the current channel. Experiment with values of 0.1, 1.0, and 10.0 and apply the Radius = 10. Add this value to the name of the channel.

The white areas in the channel are a mask that will be converted into a selection when you load this channel. This is why you had to Invert the channel to convert the edges into white. With this in mind you can edit this channel to adjust the white areas to suit your selection desires.

6. One way to edit a mask channel is to use the Levels dialog. Choose Image ➢ Adjust ➢ Levels to activate the dialog. Adjust the highlight, shadow, and midtone sliders to control the distribution of black and white (Figure 9.24). Note that the intermediate gray areas will load are partially selected areas, creating smooth gradational edges between the full sharpened (white) and unsharpened (black) areas of the selection

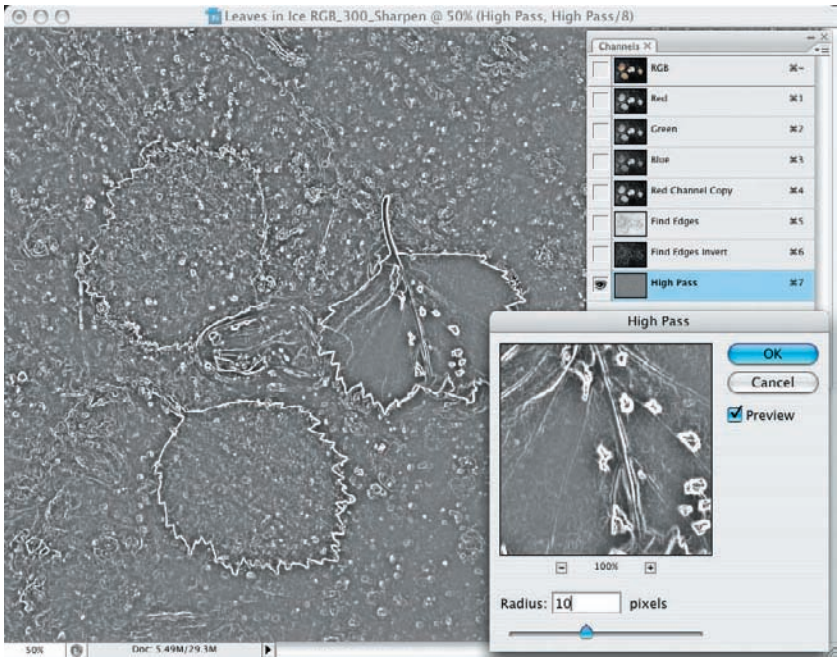


FIGURE 9.23
Initial High Pass channel

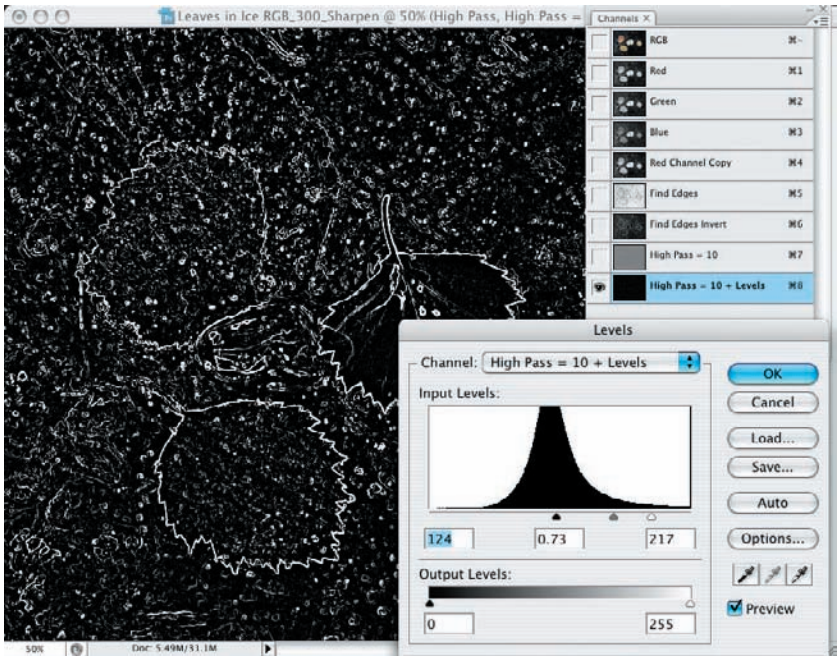


FIGURE 9.24
Levels adjusted High Pass channel

7. Duplicate your original Find Edges inverted channel (here channel 6). Name this Maximum (Figure 9.25). With this channel active choose Filter ➢ Other ➢ Maximum to activate the dialog. Assign a Radius = 3.

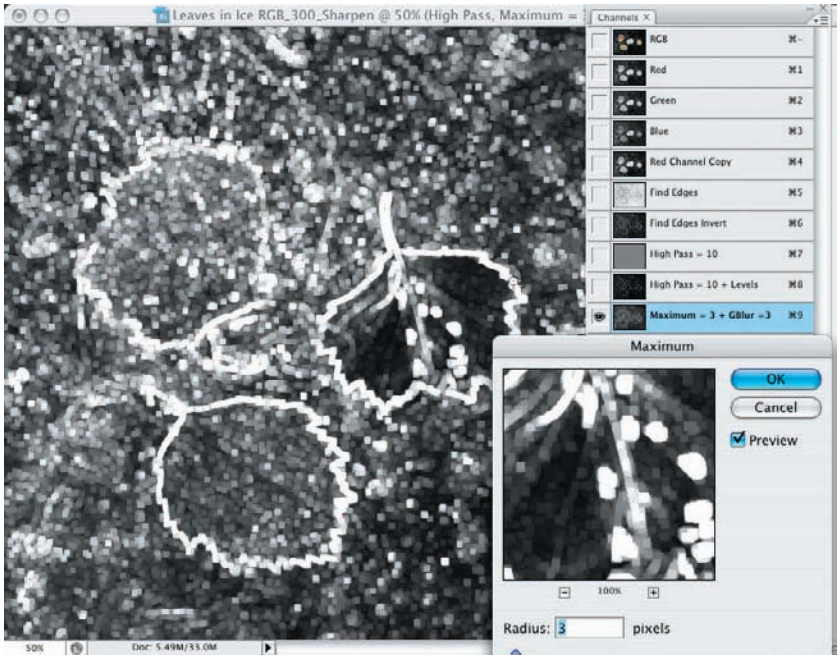


FIGURE 9.25
Maximum channel

8. Now choose Filters ➢ Blur ➢ Gaussian Blur and assign a Radius = 3 to widen and soften the white soon-to-be selection edges. Rename this channel (here #9) to reflect these alterations (Figure 9.26). Keeping track of your adjustments via labeling makes it easier to remember, and repeat, what you have done.

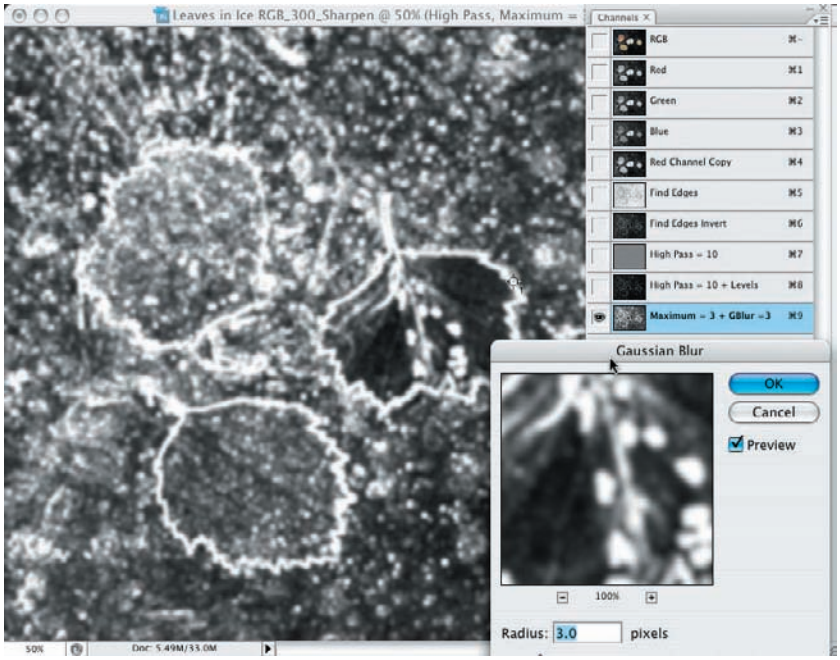


FIGURE 9.26
Blurred channel

9. Now to use the last channel mask to control your sharpening, First activate your Maximum image layer. Then choose Select ➢ Load Selection ➢ Maximum; to accomplish this with a keyboard shortcut, use Cmd+Opt+9/Ctrl+Alt+9 (the channel number). This loads the Maximum channel as a selection (Figure 9.27).

FIGURE 9.27
Loaded selection

10. To be able to see the impact of the sharpening you are about to apply, type Cmd+H/Ctrl+H to hide the selection. Then choose Filter ➢ Sharpen ➢ Unsharp Mask or Smart Sharpen (here I used Smart Sharpen) to apply the sharpening to your loaded selection (Figure 9.28).

After you have some practice visualizing the white areas in a channel mask as a selection, this process and your value selections for creating and editing your masks will become much easier!

Reducing Noise and Artifacts

Many images not only have the need for sharpening, but many have pattern reduction needs that supercede the sharpening demands.

When to Perform Noise Reduction and Sharpening

The workflow order of sharpening is easy: you should always perform this task at the end of your workflow. This is because sharpening reduces the range of tonal values that are available for editing functions.

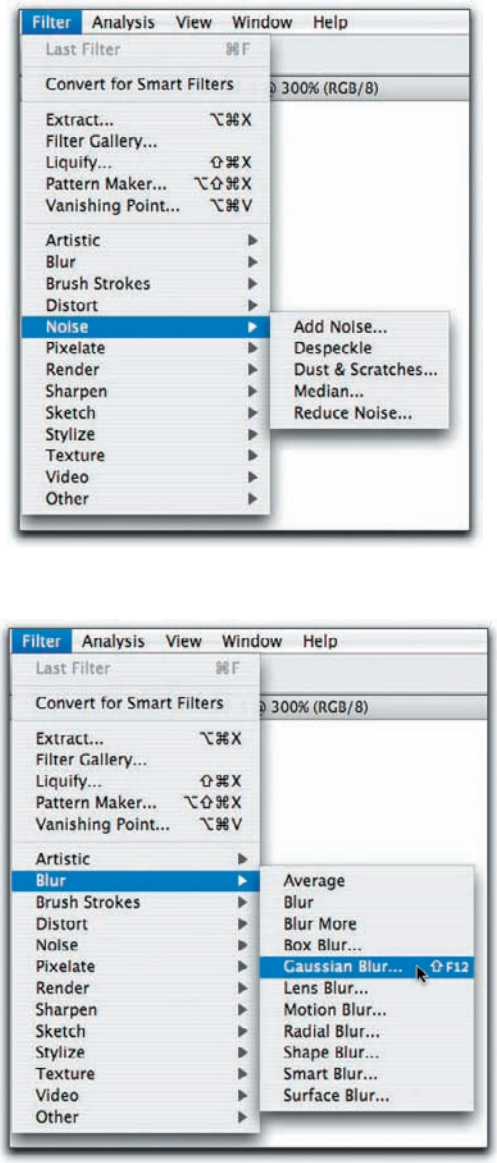
FIGURE 9.28
Final sharpened image

Noise reduction should occur early in the workflow process. If the noise patterns are severe, you should perform noise reduction right after you resize/resample an image. Noise reduction, unlike sharpening, tends to enhance the range of tonal values available in an image, thereby providing more data for image editing. You certainly want to remove any unwanted patterns prior to any cloning and retouching (see Chapter 6, "Retouching and Enhancing for Print"), because this will only spread the unwanted pattern, which in turn might be further increased by the printing process. As a general rule, always remove unwanted patterns early in your image-editing workflow.

You will often perform noise reduction and sharpening enhancements on the same images, but you should always apply noise reduction first. When you apply noise reduction, you will want to be cognizant of how much the noise reduction is softening the overall image, especially the high-contrast edges. Be thinking about how you can minimize this and return some of the focus of the image by sharpening prior to printing.

Removing a pattern in an image means softening. Photoshop offers many softening tools, including obvious ones such as the noise reduction methods found under the Filter ➢ Noise submenu (Figure 9.29). Photoshop's Blur filters can also be used effectively as smoothing, pattern reduction tools. If you choose to use the Blur filters, you should use them with restraint, because they can quickly oversoften an image. Sometimes, as with the descreening project featured later in this chapter, you may want to use the noise and blur tools in concert. With practice you will become familiar with how each tool softens an image, and learn which tools to use where and when.

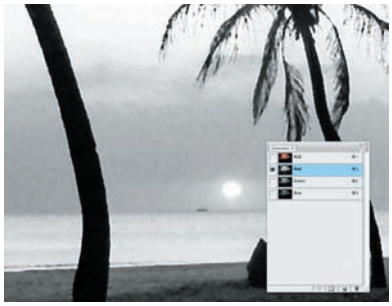
FIGURE 9.29
Noise filters

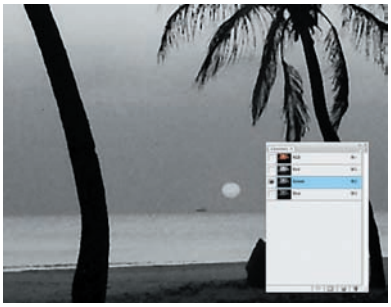


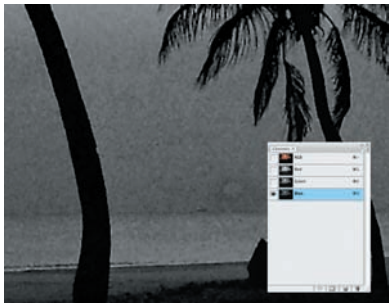
To remove noise without oversoftening an image, it is important to understand that in many cases, the noise may be concentrated in one channel (often the Blue channel). In the beach image shown in Figure 9.30, the three channels reveal the noisiness of the image in composite RGB view.

FIGURE 9.30
Beach image

RGB


Red Channel


Green Channel


Blue Channel

Now activate the Channels palette (Window ➢ Channels) and click each of the three (Red, Green, and Blue) channels. Carefully view the background sky and beach. You will clearly see that most of the noise is indeed in the Blue channel. In a case such as this, you will want to focus your pattern reduction on the Blue channel. When you can focus your softening on one channel, you can push that channel pretty hard in terms of softening to make sure you remove all the noise, without oversoftening the image. This is because the other two channels hold the focus in the image together. You will find that even if you have only one channel that is fairly clean, it can often be enough to retain the overall sharpness of the image. After noise reduction is applied, you can then follow along with some sharpening to help boost the image focus (review the descreening example later in this chapter for a lesson in sharpening the Luminance channel in Lab mode, which can also help retain image focus).

CREATING DUPLICATES AND MAINTAINING UNTOUCHED ORIGINALS

Here is a really good habit to adopt: As soon as you open an image, reduce the onscreen dimensions of the untouched original image and place it in one of the corners of your monitor (type ⌘/Ctrl+–), so that you can refer to it as you work. Then make a duplicate by choosing Image ➢ Duplicate (you can create a keyboard shortcut to regularly accomplish this). This duplicate will be your working copy. This process both retains and protects the integrity of the original image, and keeps it onscreen for comparison purposes. This is a very useful habit to adopt for all your projects.

LAB MODE

Lab mode, like RGB, is a three-channel mode for color images. However, unlike RGB, Lab separates all the tonal values (Luminance/Lightness) and places them in one channel—the L, or Lightness, channel. By doing so, it allows you to apply a variety of neutral adjustments, such as blurring and sharpening, without any danger of affecting the color or chrominance values.

Removing Image Capture Noise in Channels

Here you will work on individual channels to remove noise:

1. Open and make a duplicate copy of the Palm Sunset_RGB image. Name the copy **Palm Sunset_Smoothed**.
2. Zoom in on the area of the image where you can see the background sky and beach up close.
3. Look through the three channels to confirm that the Blue channel is indeed the noisiest one. Also see that the Green channel has some noise, but not as much as the Blue channel. So your strategy here will be to push hard on the smoothing of the Blue channel. Then you will smooth the Green channel some. You will leave the Red channel as is to hold the focus of the image together.
4. While still zoomed in so that you can see the details of the smoothing's impact, activate the Blue channel.
5. Now choose Filter ➢ Noise ➢ Dust & Scratches. The Dust & Scratches dialog box appears (Figure 9.31). Feel free to experiment with the other noise reduction tools. Each tool works well on various kinds of patterns. Zoom in to view the effects of each tool. Be sure to select the Preview check box so that you can see the effects without actually having to apply them to an image. If you are unsure as to which effect you like, create a couple of layers and apply a different effect to each one for comparison.

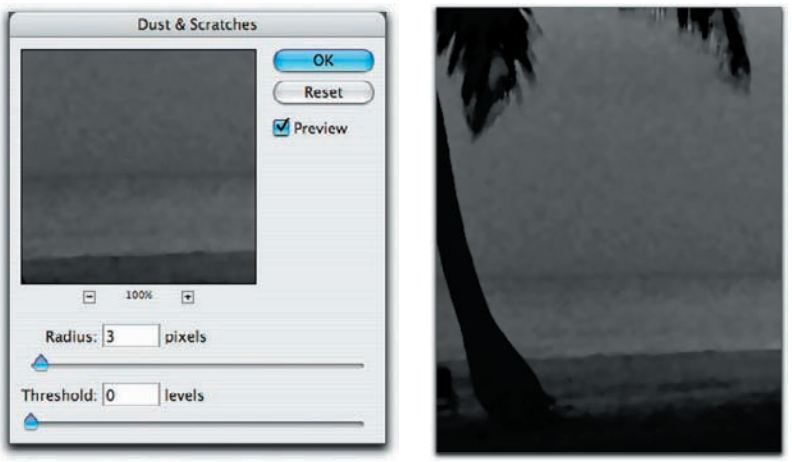
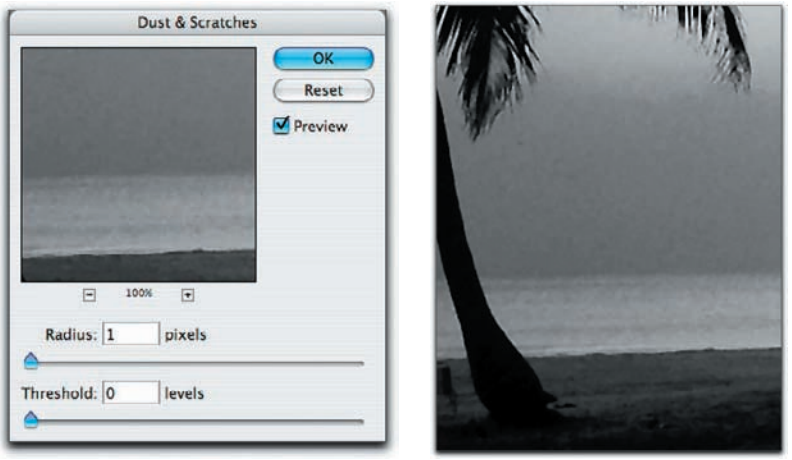


FIGURE 9.31
The Dust & Scratches dialog box, and the Blue channel softened /smoothed by the Dust & Scratches tool.

6. Set the Radius amount to 1 pixel, and then try 2, and then 3 pixels to view their impact. You will see that 3 pixels of radius really softens the noise and the image on the Blue channel. Go ahead and apply the 3 pixels. Note that you could use the Threshold value to apply the Dust & Scratches tool to only portions of the image. Experiment with Threshold values here to see which portions. For this image, set Threshold to 0.

7. While still zoomed in, activate the Green channel (Figure 9.32).

FIGURE 9.32
The Green channel softened by the Dust & Scratches tool



8. Now choose Filter ➢ Noise ➢ Dust & Scratches. The Dust & Scratches dialog box appears.

9. Set the Radius amount to 1 pixel. This will be sufficient to smooth the noise on this channel.

10. Now activate the composite RGB view of the image. Notice how the composite image is still held together in terms of focus. Praise the Red channel! And more sharpening help is on the way in step 11. Now zoom in to view the original image and compare it to the working image (Figure 9.33). You will see that much of the noise has been removed, but the hard edge detail is still preserved.

11. If you would like to add a bit more sharpness to the focus of your image, you can choose Filter ➢ Sharpen ➢ either Unsharp Mask or Smart Sharpen (see the next section for details on how to apply sharpening in this instance).

Sharpening a Noise-Reduced Image

Regardless of which sharpening tool you use (Unsharp Mask or Smart Sharpen), be wary of the sharpening process returning some of the noise. If any noise remains in your image—and there usually is some—you will want to carefully monitor any applied sharpening to make sure you do not overdo it. Typically apply only light to moderate sharpening, and perhaps in multiple events with smaller amounts when following a noise/pattern reduction event.

This thought process requires that you balance your knowledge—that you typically should oversharpen a bit for printing (to mitigate the slight softening that can occur during the printing process)—and avoid returning any unwanted noise patterns that could show up (or even become enhanced) during printing.

FIGURE 9.33
Before and after reducing noise

Here you will continue work on our noise-reduced beach image:

1. Open and make a copy of the Palm Sunset_Smoothed image you created in the preceding exercise.
2. Zoom in on an area of the image that shows both the sky background and some high-contrast edges such as the palm fronds and the tree trunks.

3. Choose Filter ➢ Sharpen ➢ Unsharp Mask. The Unsharp Mask dialog box appears. You will note that there are three variables to control:

   Amount % This controls how much sharpening will be applied in percentages. A 100% Amount will cause a 100% increase in the contrast difference between any two adjacent pixels that are sharpened. So, if there is a 10% difference in the grayscale value between two adjacent pixels prior to sharpening, there will be a 20% difference after 100% sharpening is applied.

   Radius This value determines the width, in pixels, over which the amount of sharpening is applied. Larger values result in thicker and more-obvious sharpened edges.

   Threshold This is the value, in tonal levels, that you use to control which areas of the image will be sharpened. This value dictates the levels of difference in grayscale that must exist between two adjacent pixels before sharpening will be applied. Higher Threshold values restrict the application of sharpening to higher-contrast portions, usually edges, of an image. Threshold is the tool you use to protect low-contrast areas, such as skin tones, from too much sharpening. Threshold is also the key variable you will use to mitigate the return of noise to low-contrast areas when you apply sharpening to images where you have reduced noise.

4. To begin, assign these values, and your image will look like Figure 9.34:

Amount	200
Radius	2
Threshold	0

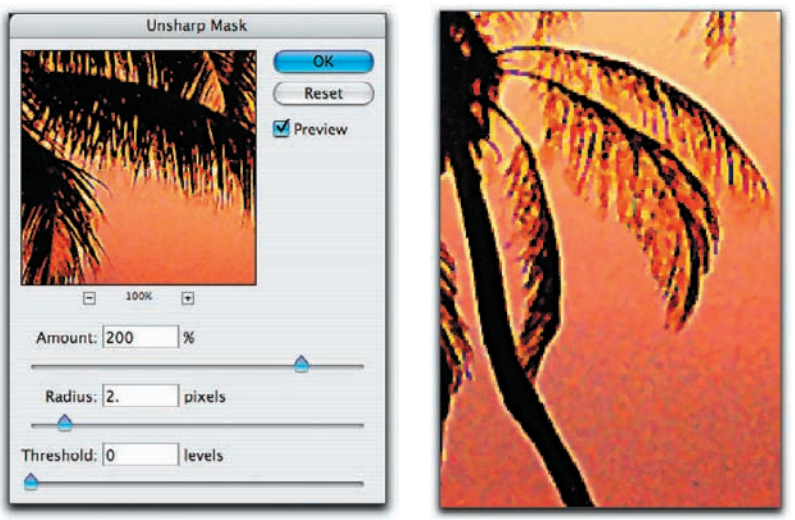


FIGURE 9.34
An oversharpened image

Note two important changes in this image:

- All of the high-contrast edge objects, such as the palm fronds in this example, have harder and higher-contrast edges. In fact, they have very light/dark edges—too much so in fact. The light side of these high-contrast edges is so bright that they form halos. These halos are especially evident when zooming in as shown here, but they will also be obvious at 100% view—too much sharpening. You will want to avoid these kinds of halos.
- Look carefully at the background sky. Toggle the Preview check box off and on. You can clearly see that the sky now has a mottled appearance due to the sharpening.

4. Keep the Unsharp Mask dialog box open and reassign these values:

Amount	50
Radius	1 (a good standard value for 200–300ppi images)
Threshold	3

Now you see a more reasonable sharpened image (Figure 9.35). Note that the high-contrast edges are still harder/sharper than the original image, but are now not sporting those obvious halos. Just as important, setting the Threshold value to 3 has protected the low-contrast background sky from the mottling that was so apparent when the Threshold was 0. You might even decide that you want to apply less sharpening, maybe 25%, if you think the edges are still too abrupt. You will notice that images (like this one) that have been though the mill cannot handle having nearly as much sharpening applied to them—so be especially careful with images like these to not overdo the sharpening.

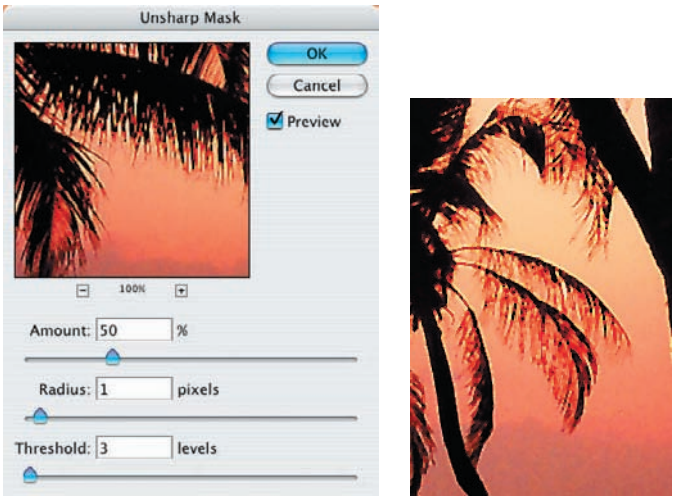


FIGURE 9.35
A properly sharpened image

Multi-Event Sharpening

Every image presents slightly different sharpening demands. Some images can withstand large amounts of sharpening and look terrific, whereas others, such as noise-reduced images, need to be treated more carefully. A good habit to adopt in these circumstances is to apply sharpening in 50% increments in order to monitor the incremental results. You may even want to switch to 25% increments on the second or third sharpening events. In this manner, you can maximize the amount of sharpening necessary to enhance the focus in your final print, while dodging the return of the unwanted pattern.

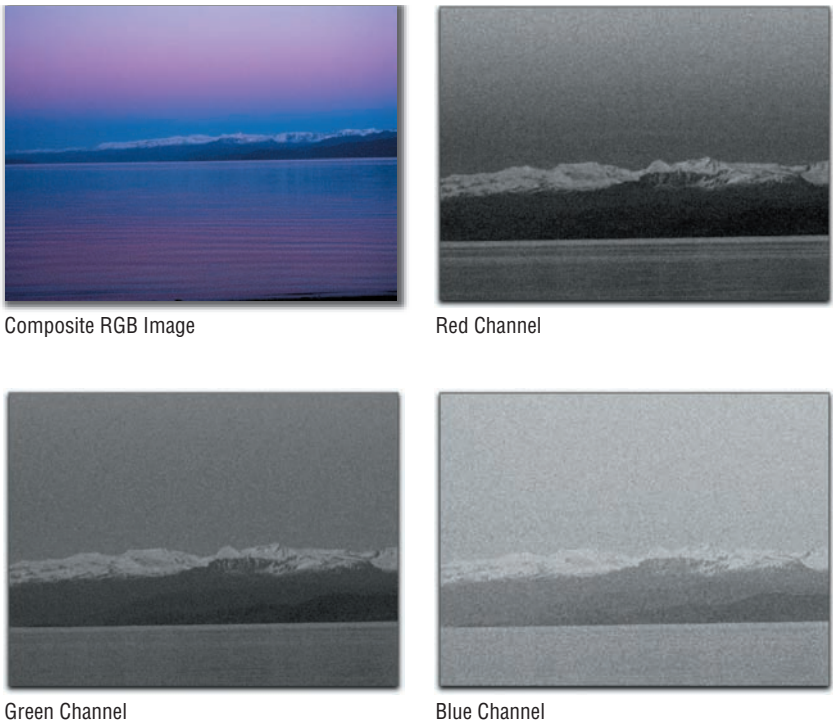
Removing Image Capture Noise in Composite RGB

Some images have lots of noise on all the channels. Usually these images are just as effectively worked on in the composite RGB mode rather than on individual channels.

Here you will work on the composite RGB channel to remove noise:

1. Open and make a duplicate copy of the PolyChrome Alpineglow_RGB image.
2. Using the Channels palette, look through the three channels to view the noise in each one (Figure 9.36). You will notice that, unlike the Palm Sunset image in the previous example, there is significant noise in all three channels. Note that this type of high noise across all three channels is typical of images shot in low-light conditions with high ISO values.

Figure 9.36
Image shot in low light at high ISO



3. Activate the RGB composite image in the Channels palette. To mitigate some of this noise and retain some of the image sharpness, you can apply the Reduce Noise filter. Choose Filter ➢ Noise ➢ Reduce Noise. The Reduce Noise dialog box appears (Figure 9.37). Note: This filter's name is deceiving, because it is both a noise reduction tool *and* a sharpening tool.

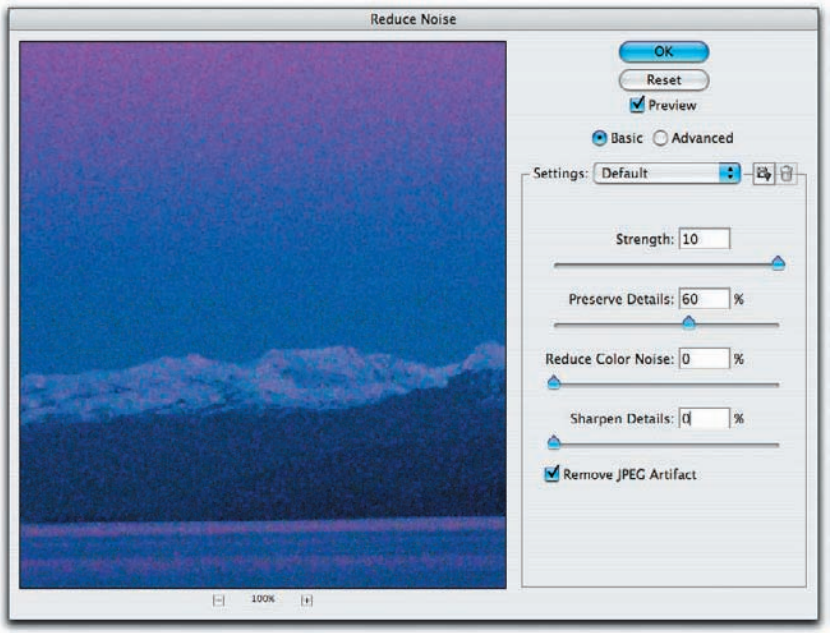


FIGURE 9.37 Reduce Noise dialog box

You will note that there are two modes, Basic and Advanced. The Advanced mode allows you to work on individual channels. Here, because all the channels are very noisy, you will need to work with only the Basic mode. There is a Remove JPEG Artifact check box and four fields to assign; the Details fields are sharpening functions:

Strength This softens luminance-based noise (noise that is symmetrically distributed on all three channels).

Preserve Details This sharpens luminance-based details (details that have been smoothed on all three channels).

Reduce Color Noise This removes color-based noise (noise that is distributed asymmetrically on the various channels).

Sharpen Details This sharpens color-based details (details that have been smoothed on all three channels).

4. Begin by zooming in on a key portion of the image. In this example, zoom in on a view that shows the sky and the mountain ridge. You can use the sky to judge the noise removal, and the mountain ridge to evaluate the sharpening. To control your zoom, you can use the + and – symbols at the bottom of the Reduce Noise dialog box or control magnification by pressing spacebar+⌘/Ctrl while clicking and dragging. Use ⌘/Ctrl++ and ⌘/Ctrl+– to zoom the image view itself behind the dialog box.
5. Enable the Preview check box to preview the effects of your settings on the actual image.
6. If you were working with a JPEG, here you'd enable the Remove JPEG Artifact option and view the results. You will find that this will remove minor JPEG artifacts but not major ones (see "Removing JPEG Artifacts" later in this chapter).
7. With the four noise reduction and sharpening fields available in this dialog box, you could chase your digital tail by randomly applying values. The best way to start is to apply 0 to all of the fields.
8. The next step is to configure the top two luminance-based values. Increase the value (1–10) until the noise pattern softens enough. You can push this image all the way to 10, but for many images this is too much.
9. Now raise the Preserve Details values (%) until the sharpness of the high-contrast ridgeline edge improves. Keep raising the value until the noise begins to reappear in the sky, and then back off a bit. Try in the 50%–60% range.
10. Now zoom in even more on a highly colored rich portion of the image. There really isn't a super color-rich area in this image, but try the color gradient in the sky or water.
11. Apply some Reduce Color Noise values while carefully viewing the preview. Repeat the same procedure as with the Luminance values earlier.

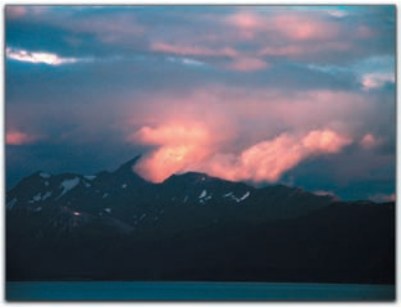
In this image, the color noise has little impact, so you need not make any adjustments. This means that most of the noise is luminance-based. With this noise reduction tool, you are able to view and separate luminance noise from color noise and adjust your image accordingly.

Removing Image Capture Noise in Channels

Here you will learn how to use the Noise Reduction filter on specific channels:

1. Open and make a duplicate copy of the Sadie Peak_RGB image.
2. Look through the three channels in the Channels palette to view the noise in each one (Figure 9.38). You can see that most of the noise is concentrated on the Blue channel. Therefore, this is where you should concentrate your efforts.

FIGURE 9.38
Sadie Peak image


Composite RGB Image

Red Channel

Green Channel

Blue Channel

3. Activate the RGB composite image in the Channels palette and then choose Filter ➢ Noise ➢ Reduce Noise.
4. In the Overall tab, enter 0 for all the values, but keep the Remove JPEG Artifact option selected.
5. Now click the Advanced radio button, and click the Per Channel tab.
6. From the Channel menu, choose the Blue channel. Strength (reduce noise) and Preserve Details (sharpening) fields are presented.

   You know from working with the previous Palm Sunset image that you can push an individual channel pretty hard without seeing much softening of the image as a whole.
7. Apply a Strength of 10 and leave the Preserve Details amount at 0. You can see a preview of the filter's impact on the Blue channel in the small Per Channel preview window (Figure 9.39). To see the effect on the whole image, refer to the larger preview image in the dialog box, or the image itself if you have the Preview option enabled.
8. You could also apply channel-specific noise reduction on the other channels if they required it.

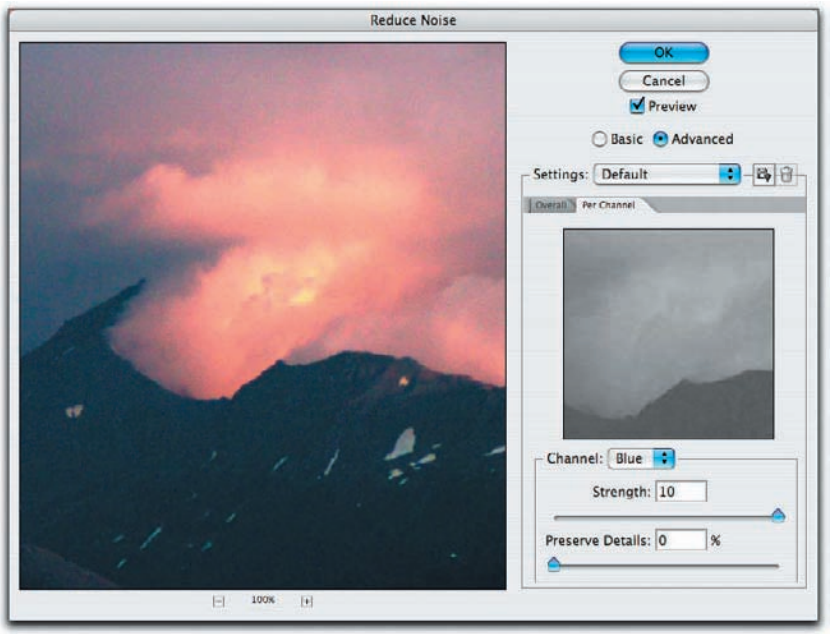


FIGURE 9.39
Noise reduction on the Blue channel

SHARPENING AFTER REDUCING NOISE

To sharpen this image a bit, you could use the Sharpen Details tool located at the bottom of the Basic dialog box. The biggest disadvantage to using this sharpening tool with this example image is that there is no Threshold control. I recommend following up with a dedicated sharpening tool—in this example, Unsharp Mask again.

Apply your Noise Reduction values and return to your RGB image view. Choose Filter ➢ Sharpen ➢ Unsharp Mask. The emphasis here is on sharpening high-contrast edges, such as the ridge and shorelines, without bringing back the noise or adding any sharpening-related mottling to the soft sky. Your approach should be to apply a large radius and a larger threshold as well.

Try these Unsharp Mask values:

Amount	200
Radius	1
Threshold	5

Applying these settings will make your high-contrast ridge and shorelines pop, but keep the sky soft and smooth. (Figure 9.40).

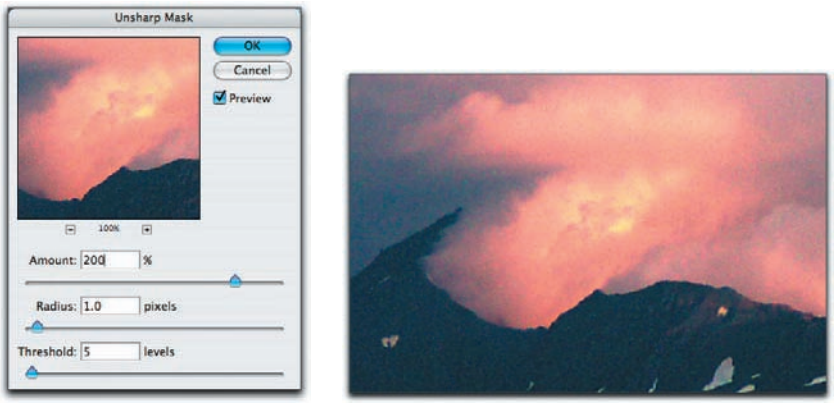


FIGURE 9.40
A sharpened ridgeline

CHANNEL-SPECIFIC SOFTENING AND PRINTING

The first challenge when working with noisy print-bound images is making sure that you have sufficiently softened them prior to printing. Failing to do so can result in the noise pattern showing up in the print, or worse—the noise can be exacerbated by the printing process and possibly print as a moiré pattern. The second challenge is to not oversoften with noise reduction, thereby creating prints that appear too soft or out of focus. By reducing the noise in individual channels, you can remove noisy patterns while still retaining as much image sharpness as possible.

COLOR SHIFTS FROM SHARPENING

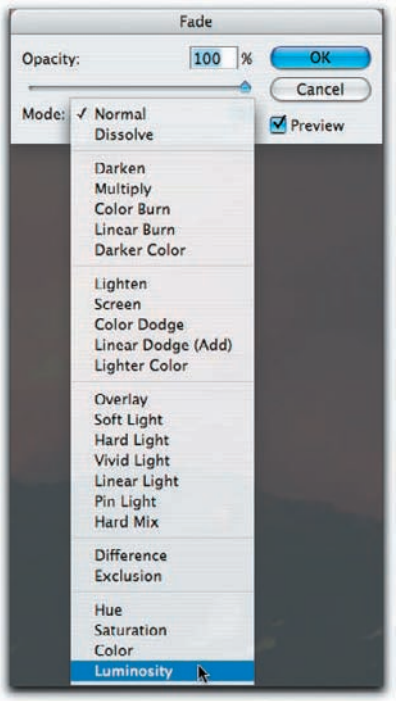
One unwelcome result of sharpening RGB images, particularly when applied in large amounts, can be color shifts that occur along high-contrast edges. RGB images have both color and luminance values integrated into all three channels. When sharpening is applied to an RGB image, edges within an image contain different levels of contrast in each of the channels (for an example, view the differences in the contrast of the mountain ridgeline in each of the three channels of the Sadie Peak example image). This of course means that the sharpening will be applied differently on all three channels. This in turn results in the RGB values for each channel having different value shifts. In RGB mode, this results in variable shifts not only in luminance values but also in color values as well. This can create color shifts along high-contrast edges. This potential color shift can be prevented in two ways:

- Redistribute the sharpening across all three channels.
- Don't apply sharpening to RGB images—work in Lab mode instead.

You will see how to use both of these approaches in the following examples.

1. To prevent any color shifts from occurring along high-contrast edges (the ridgeline in this example), you will redistribute the sharpening across all three channels. Choose Edit ➢ Fade Unsharp Mask. The Fade dialog box appears (Figure 9.41).

FIGURE 9.41
Fade Unsharp Mask dialog box



2. Keep the Opacity at 100%. Then click the Mode menu and choose Luminosity. This will attempt to apply the Unsharp Mask adjustment to only the luminance/lightness values in the image.
3. Save the finished image as Sadie Peak_RGB_Corrected.

SHARPENING-RELATED COLOR SHIFTS AND PRINTING

Color shifts can occur along high-contrast edges because of uneven application of edge contrast, which is increased when sharpening. This may become more visible when an image is printed in CMYK than when viewing the edges onscreen in RGB. Color shifts are most apparent along high-contrast edges, where there is also a large difference in color values. For this reason, it is good to get in the habit of either fading by using the Fade command (redistributing) or preventing the uneven application of sharpening altogether.

Removing JPEG Artifacts

When digital camera images—or any other images for that matter—are saved as highly compressed JPEGs, you will have to contend with the presence of JPEG artifacts. These artifacts are often in the form of compression artifacts in the pixel patterns. Here you will learn what to do—and even more important, what *not* to do—when working with these types of images:

1. Open and make a copy of the Cowboy_RGB image.

2. Zoom in on the cowboy's face. You will clearly see a rectangular pattern of compression artifacts in the pixels (Figure 9.42). These are groups of pixels that have similar values.

FIGURE 9.42
JPEG artifact pixels

The loss of image detail that has resulted from this JPEG compression cannot be reclaimed. But what you can do is decrease the visual effects of the compression artifacts that have been created.

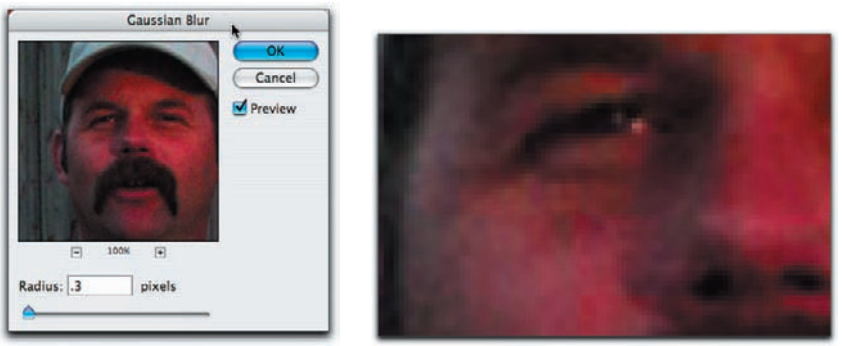
A pattern of posterized pixels has recognizable edges. Choose Filter ➢ Sharpen ➢ Unsharp Mask, and assign the following values: Amount = 100, Radius = 1, Threshold = 0. Click the Preview button to witness the disturbing results (Figure 9.43). Notice how the JPEG pattern of compression artifacts is exacerbated by the sharpening. The sharpening attacks the edges of compression artifacts pattern just like any other high-contrast edge. So don't do this! Always soften the artifacts prior to sharpening.

FIGURE 9.43
Sharpening exacerbates JPEG compression artifacts

You will want to get in the good habit of zooming in and checking for these JPEG patterns of compression artifacts before sharpening these compressed images.

3. While still zoomed in with the compression artifacts patterns visible, choose Filter ➢ Blur ➢ Gaussian Blur. The Gaussian Blur dialog box appears.
4. Set the Gaussian Blur radius initially to 0.1.
5. While watching the compression artifacts in the pixels, start raising the Gaussian Blur radius in 0.1 increments. At around 0.3 to 0.4, you will see a dramatic softening of the JPEG pattern of artifacts (Figure 9.44). How much blur you should apply depends on the amount of posterization in the image.

FIGURE 9.44
Blurred pixels



SHARPENING AFTER REMOVING ARTIFACTS

After you have softened the pattern of JPEG degradation, you can carefully apply some sharpening to regain some image focus:

1. While still zoomed in and watching both the high-contrast edges and the smoother skin tones, choose Filter ➢ Sharpen ➢ Unsharp Mask.
2. Assign the following Unsharp Mask values:

Amount	50
Radius	1
Threshold	3–5

   View the results of this sharpening.
3. While carefully watching the skin tones to monitor the return of any posterization, apply the same amount again, and perhaps even a third time. Applying your sharpening incrementally like this affords you more control over the final results.

One final tip here: always check your image at 100% view before you accept the final results. Although you may want to zoom in to inspect how the sharpening affects the image at the per pixel level, viewing your image at 100% provides you with the best approximation of what this image's sharpness and focus will look like when printed. At 100% view, your image should look slightly sharper onscreen than when printed. Remember, not all of this sharpening will make it through the printing process, because printing in general softens your image.

Real World Scenario

Descreening in Lab Mode

Whenever you capture (usually scan) a previously screened (printed) image, you will have to remove the pattern of halftone dots that is captured by your scanner or digital camera.

To not remove a scanned screen pattern is courting real print danger; because of all the unwanted patterns in your images, the captured screen pattern is the one most likely to be reproduced during printing. And a reprinted screen pattern is usually in league with the even more obvious moiré pattern (a rescreened screen pattern). A moiré pattern occurs when the original captured screen pattern interacts with the new screen pattern to create an unsightly and very obvious combination. To make this whole issue even more challenging, the moiré pattern will not be apparent until you print the image—and by then it's too late. So in short, descreening is critical.

Follow these steps to tackle the descreening challenge:

1. Open and make a copy of the Book Cover Scan_RGB_300 image.
2. Zoom in on the type at the top of the image. You will clearly see a rectilinear pattern superimposed. This is how the scanner "saw" and captured the pattern of halftone dots that were used to print this image.

3. Display the Channels palette (Window ➢ Channels) and click each of the three channels to view them separately. You will see that a captured halftone dot pattern is present and strong in all three channels. This tells you that you should work on the composite RGB channel instead of focusing on individual channels.

Red Channel

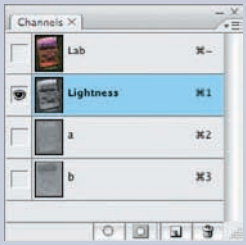
Green Channel

Blue Channel

4. One of the most consistently effective smoothing tools for removing halftone dot patterns is the Median filter. Choose Filter ➢ Noise ➢ Median to display the Median dialog box.

5. The Median filter operates in whole-pixel increments. A value of 1 pixel removes most of the pattern, but not quite all. A 2-pixel setting will take away all of the pattern but can result in softening a bit too much. For best results, start with a 1-pixel setting and follow up later with a fine-tuned smoothing adjustment.

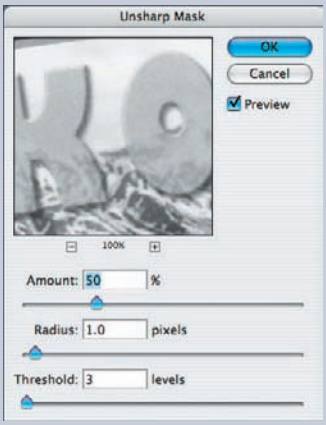
6. Convert your image to Lab mode by choosing Image ➢ Mode ➢ Lab. Then in the Channels palette, activate the Lightness (Luminance) channel. You will note that there is still a small relic of the halftone pattern.



7. Choose Filter ➢ Blur ➢ Gaussian Blur to display the Gaussian Blur dialog box. Set the Radius initially at 0.1 pixels, and then raise it until the halftone dot pattern is gone. One of the advantages of using this Blur tool is that you can set adjustments in 0.1-pixel increments, rather than being forced to adjust in full-pixel increments as with the Median filter. A setting of 0.3–0.4 pixels should be enough here.

8. While you are still in Lab mode, apply some sharpening. Choose Filter ➢ Sharpen ➢ Unsharp Mask to display the Unsharp Mask dialog box. Here you will want to apply the sharpening incrementally so you can monitor the preview and avoid the return of any of the halftone dot scan pattern. Assign the following values: Amount = 50, Radius = 1, and Threshold = 3. (The relatively high Threshold value will help prevent the pattern from returning.)

9. Apply the same Unsharp Mask values two or three more times (simply type ⌘/Ctrl+F to reapply any filter with the same values) while you closely monitor the L channel.



10. When you are satisfied with the amount of sharpening applied, view the image in composite view.

You now have three options: convert this image back to RGB, convert it to CMYK, or leave it in Lab mode. If you have any Curves-based Brightness or Contrast adjustments to make in the image, working on the L channel is a great place to apply them. This is because they are both neutral-oriented adjustments that do not involve color values at all. However, you should make these adjustments prior to performing your sharpening (please see Chapter 5, "Tonal and Color Corrections," for more-specific information on creating and using Curves adjustment layers). Remember that sharpening decreases the number of grayscale/tonal values available in an image for editing and correction, especially along high-contrast edges.

Well, there you have it, a whole set of smoothing and sharpening skills, tools, and techniques that you can use to improve the quality of your print images. By mixing and matching these various skills, tools, and techniques, you should be able to tackle just about any noise or sharpening challenge. And as you gain experience working with your own images, you can fine-tune these techniques to suit your needs. In time you will no doubt develop your own methods. My final suggestion for you is to always evaluate your images prior to making adjustments. Take time to zoom in and look through the channels. With a thorough image evaluation, you will save yourself lots of time flailing around with inappropriate tools or techniques. Ultimately, you will work faster and achieve better results.

The Bottom Line

Effectively Remove Digital Capture Noise Noise in digital images can have many sources. Recognizing the digital data and removing it prior to sharpening is a key to creating good quality images.

> **Master It** Open an image with noise. Look through your channels to identify whether the noise or pattern is distributed symmetrically across all three channels, or if some channels have more noise than others. Why would this matter?

Remove JPEG Degradation Compression related artifacts are commonly found in many digital camera images as well as web images saved in compressed format. These artifacts can significantly degrade the detail in an image. Applying sharpening to compression artifact just makes them worse, so they must be removed prior to sharpening.

> **Master It** Learn to recognize the familiar pattern of rectangular pixel pattern groups that are harbingers of compression.

Descreen Scanned-In Halftone Patterns Printed images that are captured and digitized will often contain the pattern of the halftone dots (screen pattern) that made up the image.

> **Master It** Captured print screens are usually made worse by reprinting them, creating patterns known as moiré patterns. So recognizing and removing the screen pattern is critical to perform prior to reprinting.

Sharpen Images for High-Resolution Print Output Nearly all digital images need to be sharpened. Just the process of capturing an image with a digital capture device such as a scanner or digital camera softens an image.

> **Master It** Photoshop offers a variety of different sharpening tools. Choosing the best tools and methods is the key to sharp images. Which are the most common, and how do you know when to use each?

Chapter 10

Editing in Camera Raw

One way to get the most out of image editing in Photoshop is to work with RAW, TIFF, and JPEG files by using the Camera Raw plug-in. More and more photographers are shooting in RAW format, and as a print designer, you are bound to come across these types of images (if you haven't already). The Camera Raw plug-in offers special exposure and white balance options that can't be made directly in the Photoshop workspace. For designers, the advantage to working with Camera Raw is that you can apply some of these settings nondestructively to TIFFs and JPEGs as well as to RAW images.

In this chapter, you will learn to:

- Prepare RAW images for print
- Edit TIFFs and JPEGs with Camera Raw
- Adjust multiple images with synchronized Camera Raw settings

Working with RAW Images and Camera Raw

By default the Camera Raw 4.0 plug-in is installed with Photoshop CS3. In order to work with RAW files in Photoshop, the images must be saved in the RAW format when photographed or converted to the DNG format (see the upcoming "Digital Negative (DNG) Format" sidebar). All professional-level digital cameras, as well as most prosumer and many higher-end consumer cameras, allow you to save images in a native RAW file format (as well as in JPEG or TIFF format). If you're shooting your own photos to be used in print layouts, be sure to check your user guide to find out whether your camera has this option. If so, you can usually choose it from the camera's setup menu.

When you shoot in JPEG format (or TIFF), the camera does some processing as it saves the image, including adding compression. RAW files are actually made up of unprocessed data just as it is captured by the camera's image sensor. Shooting in RAW format allows you to capture a wider range of colors and acquire much more accurate image detail, and editing them in Camera Raw is nondestructive. The downside is that the file size of a RAW image is much larger than a JPEG or TIFF because of all the extra information that is stored in the file. To accommodate this, photographers may need to purchase a media card with increased storage capacity, or invest in an extra hard disk.

Different cameras produce different types of RAW files, with different file extensions. For example, a RAW image captured by an Olympus digital camera has the `.orf` file extension, whereas a RAW image captured by a Nikon camera has the `.nef` extension. There are also RAW formats for Canon (`.crw`), Minolta (`.mrw`), and Fuji (`.raf`).

The Photoshop Camera Raw plug-in can recognize most of these RAW file formats. For a current list of supported cameras and file types, along with installation instructions for the plug-in, refer to Adobe's website (`www.adobe.com/support`) and search for *supported cameras* (see Figure 10.1).

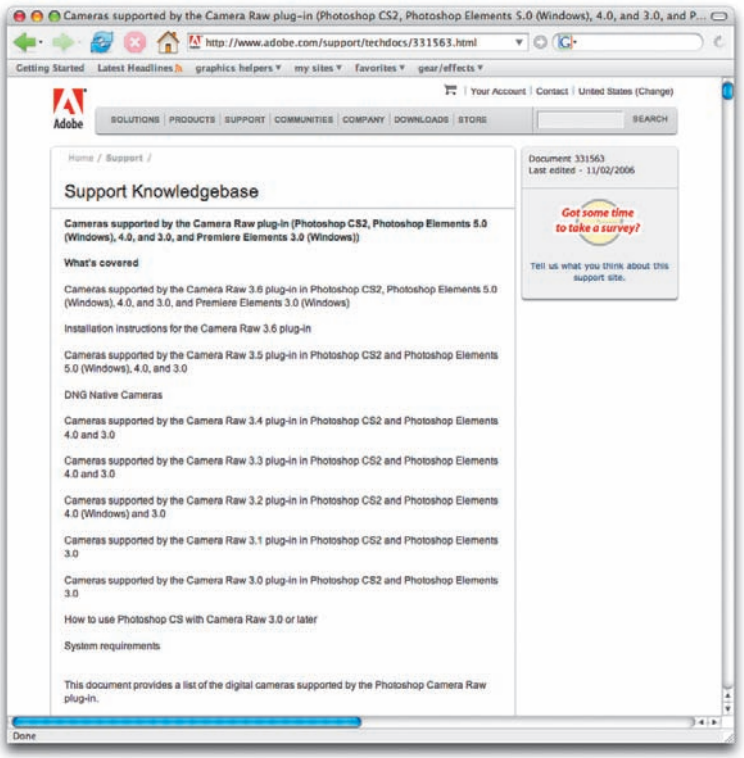


FIGURE 10.1
Refer to Adobe's website for an updated list of cameras and RAW file formats that Camera Raw supports.

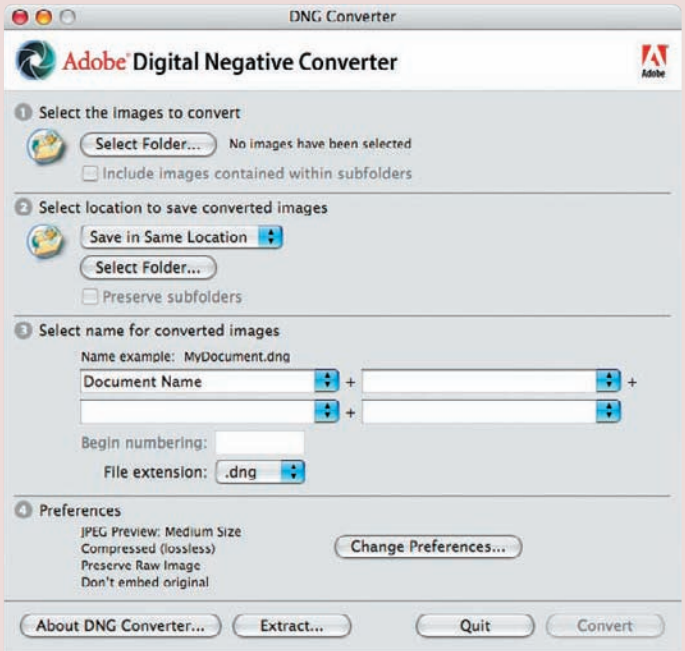
Whenever you open a RAW file in the plug-in workspace, it always displays the most recently applied settings for that image. Any adjustments made with the plug-in are stored in the RAW file (provided it is saved in the DNG format) along with the image's original camera settings. This means that no matter what adjustments you've made when using the plug-in, you can always revert to the original "as shot" settings at any time. This is true for all RAW formats, including DNG. If no settings have been applied yet to the image, the "as shot" settings are displayed in the Camera Raw dialog box when the image is opened.

RAW files cannot be placed in a layout application such as Adobe InDesign or QuarkXPress. They must be opened in the Photoshop workspace through Camera Raw and saved in a file format that the layout application can output after the image is placed. The best file formats to use for CMYK output from a layout application are TIFF, EPS, or, PSD (for more on file formats for print design, see Chapter 13, "Saving, Printing, and Output"). Note that InDesign allows you to place layered PSD files including layer comps and allows you to control their visibility from within the layout application via Object Layer Options (for more on layer comps and InDesign, see Chapter 11, "Integration"). You can place PSD files into QuarkXPress layouts and control their layer visibility only if the free the third-party PSD Import Xtensions software plug-in is installed. The plug-in comes installed with QuarkXPress 7, and a version for XPress 6.5 is available for download at `www.quark.com`.

Digital Negative (DNG) Format

In an attempt to standardize a format for all RAW images, Adobe has created the Digital Negative (DNG) format. Unfortunately, many camera manufacturers have not yet embraced this file format as Adobe had hoped they would. However, you can download and use Adobe's free Digital Negative Converter software, which allows you to convert RAW images into the more universal DNG format. The DNG Converter is available at `www.adobe.com/products/dng`.

Also new to CS3 is the Adobe Photo Downloader application, which allows you to convert images to the DNG format upon import. In the Bridge Preferences General panel there is a preference that, when enabled, tells Bridge to automatically launch the Photo Downloader application whenever a camera is connected to the computer. If you expect to be importing a lot of RAW files directly from a camera and would like to convert them all to DNG, you should enable this preference.



After making your edits, you can click Done to save the Camera Raw adjustments and close the file; click Save Image to save it in a different file format; or click Open to open the image in the Photoshop workspace.

Editing TIFFs and JPEGs in Camera Raw

With CS3, you can now edit TIFFs and JPEGs in Camera Raw. This is a huge advantage to graphic designers as well as photographers, because it gives you access to the exposure controls and auto

white balance settings that were previously applicable only to RAW files (this does not include the additional white balance settings that are accessible only with RAW files, as they require EXIF information that is not available in TIFFs or JPEGs). The exposure controls in Camera Raw far surpass the controls available in the Exposure adjustment dialog box in the Photoshop workspace. Additionally, the auto white balance settings in Camera Raw are much quicker and easier to apply than when working with the eyedroppers in Photoshop's Curves or Levels dialog boxes. Also, you can retain access to the "as shot" settings even after any adjustments are made to TIFFs or JPEGs in Camera Raw—a nice alternative to working with adjustment layers.

With all of the added features in Camera Raw 4.0, you can apply many of your print image edits directly in the Camera Raw interface. Many of the tools that you would normally use to apply tonal and color adjustments in the Photoshop workspace are now present in the Camera Raw plug-in, including the following:

- Shadows/Highlights adjustments (Fill Light and Recovery in Camera Raw)
- Curves (Tone Curve in Camera Raw)
- Brightness/Contrast
- Hue/Saturation (HSL and Vibrance/Saturation sliders in Camera Raw)
- Black And White adjustments (Convert To Grayscale sliders in Camera Raw)
- Photo Filter (Temperature and Tint sliders in Camera Raw)
- Red Eye Removal tool
- Crop and Straighten tools
- Spot Healing (Retouch tool in Camera Raw)
- Auto Tone and Color Correction

The disadvantage to applying the bulk of your image adjustments in Camera Raw is that you don't have access to the other features available in Photoshop, such as layers, masks, and filters. One other limitation is that you cannot print images directly from the Camera Raw interface to a proofing device, nor can you create a contact sheet as you can in the Photoshop workspace. However, for simple tonal and color adjustments, working entirely in Camera Raw can save you some steps in the long run.

To open a TIFF or JPEG in Camera Raw, use any one of the following three procedures:

- From Photoshop CS3, choose File ➢ Open (Mac) or File ➢ Open As (Win). In the dialog box that appears, choose Camera Raw from the Format menu (Mac) or Open As menu (Win).
- From Bridge, Control+click on the image thumbnail (Mac) or right-click with a two-button mouse and choose Open in Camera Raw.
- From Bridge, press ⌘/Ctrl+K to access the Preferences dialog box. Click on the Thumbnails tab on the left of the dialog to access the Thumbnails preference panel. Enable the Prefer Adobe Camera Raw For JPEG And TIFF Files preference and click OK to close the dialog.

Now any time you double-click a JPEG or TIFF thumbnail in Bridge, the image (or multiple selected images) will open in Camera Raw. With this preference enabled, Photoshop does not need to be launched in order to open JPEGs or TIFFs in Camera Raw through Bridge (see figure 10.2).

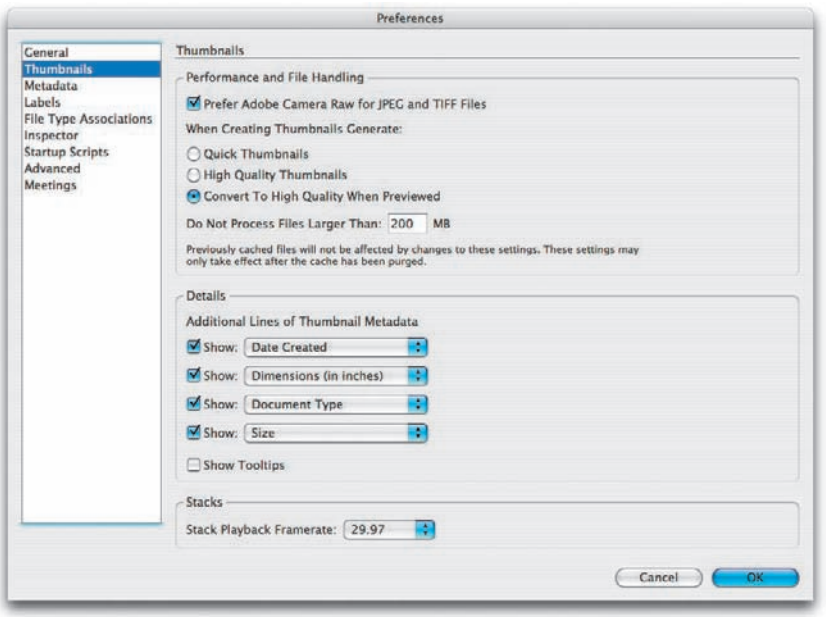


FIGURE 10.2
Using Bridge to Open Images in Camera Raw

The TIFF or JPEG automatically appears in the Camera Raw workspace. As with RAW files, the "as shot" settings are stored in the file. This means that no matter what adjustments you've made when using the plug-in, you can always revert to the original "as shot" settings at any time.

After making your edits, you can click Done to save the Camera Raw adjustments and close the file; click Save Image to save it in a different file format; or click Open to open the image in the Photoshop workspace.

Using the Camera Raw Dialog Box

Any time you open a RAW file in Photoshop, by using either the File ➢ Open command or by double-clicking the image thumbnail in Bridge, the image is automatically displayed in the Camera Raw dialog box. You can also choose to edit TIFF and JPEG images in Camera Raw as described in the previous section. You cannot access any of the traditional Photoshop tools or menus while the Camera Raw plug-in workspace is active.

The Camera Raw dialog now contains eight control panels, each one featuring different adjustment options. Click one of the eight menu tabs to display a panel (see Figure 10.3). Each menu tab is labeled with a descriptive icon.

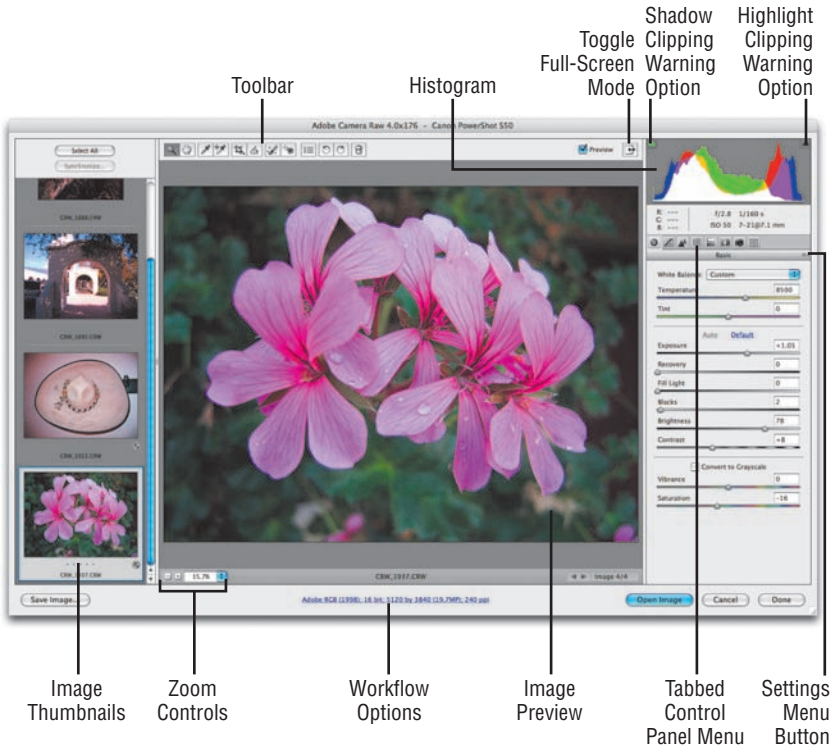


FIGURE 10.3
The Camera Raw plug-in workspace, with the Basic tab visible

Camera Raw Tools and Settings

As you can see, the Camera Raw plug-in workspace contains many options for optimizing RAW, TIFF, and JPEG images. Before we start optimizing print images with Camera Raw, let's first take a close look at the dialog box and its various controls:

Image Preview and Navigation Tools The Camera Raw interface contains its own preview window and its own set of navigational controls, including a Zoom tool, a Zoom Level menu, a Hand tool, a clockwise rotation tool, and a counterclockwise rotation tool. The preview window takes up the entire left side of the dialog, and the tools are positioned just above it in the upper left.

You can access the Zoom tool by pressing Z on the keyboard or by clicking the Zoom tool icon. It works like the traditional Photoshop Zoom tool; you zoom in by clicking anywhere in the image preview area and zoom out by Option/Alt+clicking. You can also zoom in or out by using the + or – zoom level buttons located underneath the image preview at the bottom left of the dialog. Or if you prefer, you can also choose a zoom level preset from the menu to the right of the + or – buttons. You may find it easier to use the traditional zoom commands of ⌘+ or – (Mac) or Ctrl+ or – (Win); you can also use them in the RAW workspace environment. Finally, the ⌘/Ctrl and Option/Alt keys will temporarily change the current tool to the Zoom In and Zoom Out tools, respectively.

The Hand tool allows you to reposition a zoomed image in the window by clicking and dragging in the preview area. To access the tool, click the Hand icon or press H. You can also press and hold the spacebar to temporarily access the Hand tool while you have one of the other tools accessed, just as you can when editing images in the Photoshop workspace.

The Camera Raw workspace also offers two Rotate tools: one for rotating an image 90° clockwise and one for rotating 90° counterclockwise. You can change image orientation by using either of these Rotate tools (see Figure 10.4). When you exit the Camera Raw interface, the image's current orientation is saved along with the file and is displayed exactly the same way when reopened.

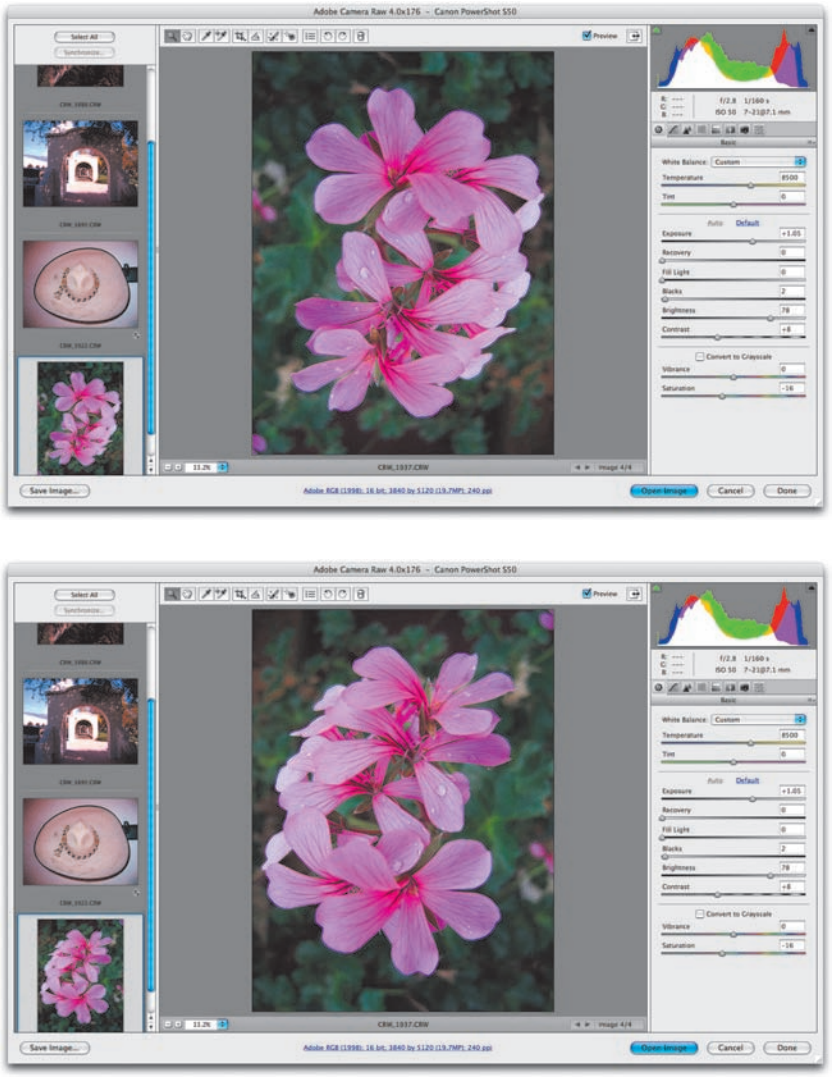


FIGURE 10.4
Rotating an image with the Rotate tools: 90° clockwise (top), 90° counterclockwise (bottom)

White Balance Tool The White Balance eyedropper works much like the middle eyedropper located in the Levels and Curves dialog boxes (see Chapter 5, "Tonal and Color Corrections"). Click in the image preview area to set a 50% (or neutral) gray point. This allows Photoshop to determine the proper Temperature and Tint settings to accommodate for removing all of the color in the area where you clicked. When using the White Balance eyedropper, you should always click in an area of the image that should be gray and not contain any color (see Figure 10.5).

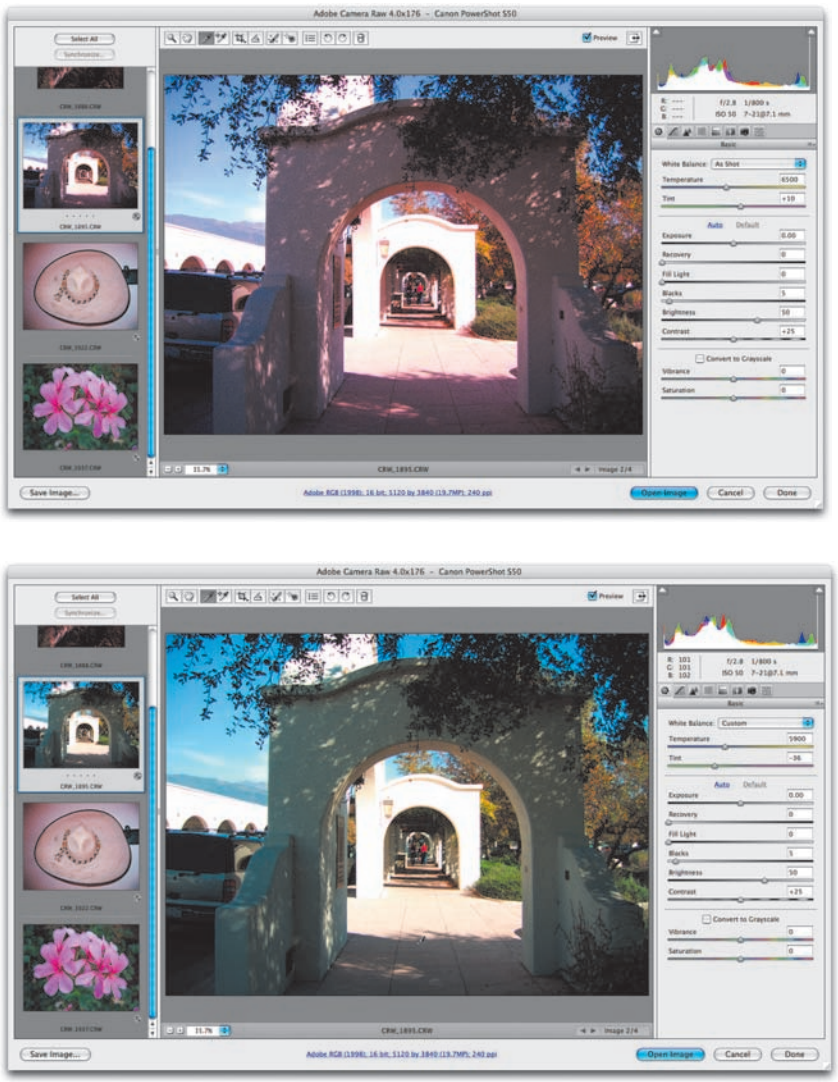


FIGURE 10.5
The original image (top). Clicking with the White Balance eyedropper in an area of the image that should not contain any color, such as the concrete tiles in this image (bottom).

Color Sampler Tool You can use the Color Sampler eyedropper along with the RGB values displayed below the histogram just as you would the Color Sampler tool and Info palette in Photoshop (see Chapter 5, "Tonal and Color Corrections"). Use the Color Sampler to mark

reference points in the image. You can use these reference points when making tonal adjustments with Tonal Curves, or Color adjustments with the HSL controls (see Figure 10.6).

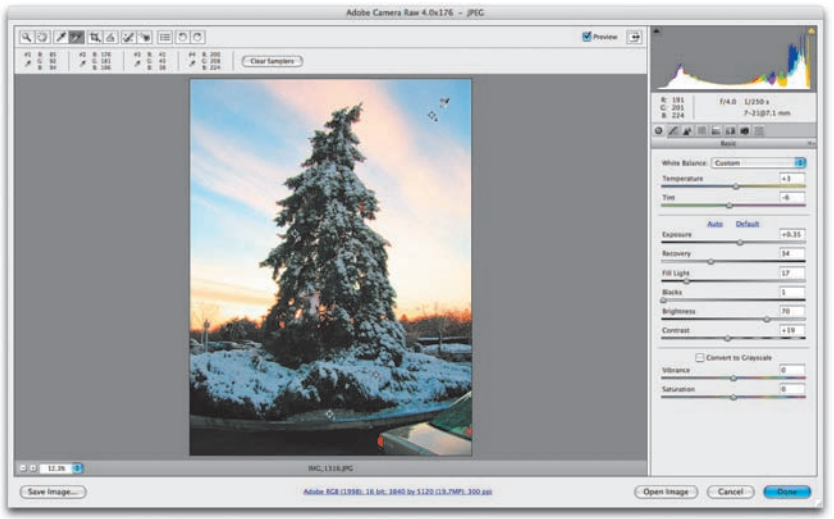


FIGURE 10.6
Marking points in the image with the Color Sampler eyedropper for later reference

Crop and Straighten Tools Click and drag with the Crop tool to determine how much of the image will appear when opening it in Photoshop (see Figure 10.7).

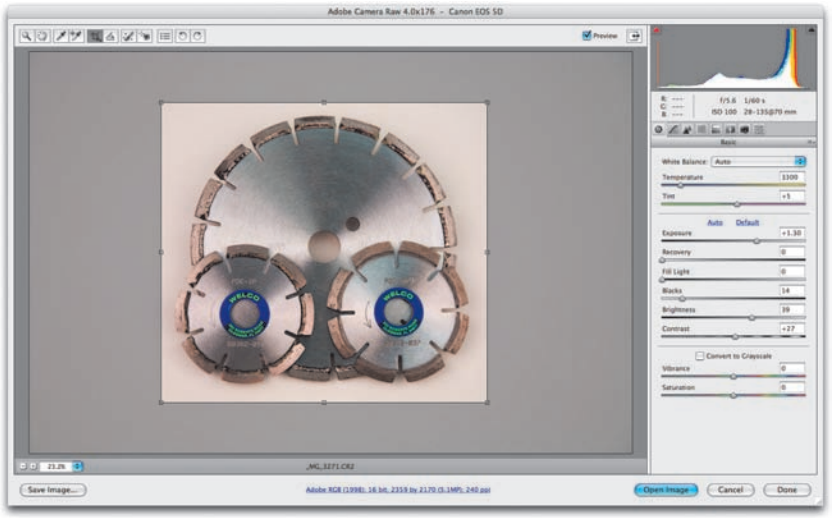


FIGURE 10.7
Cropping an image in Camera Raw

By clicking and holding the Crop tool icon, you can access a pop-up menu and choose from a list of preset width/height ratios. Choose Custom to enter precise width and height values (see Figure 10.8).

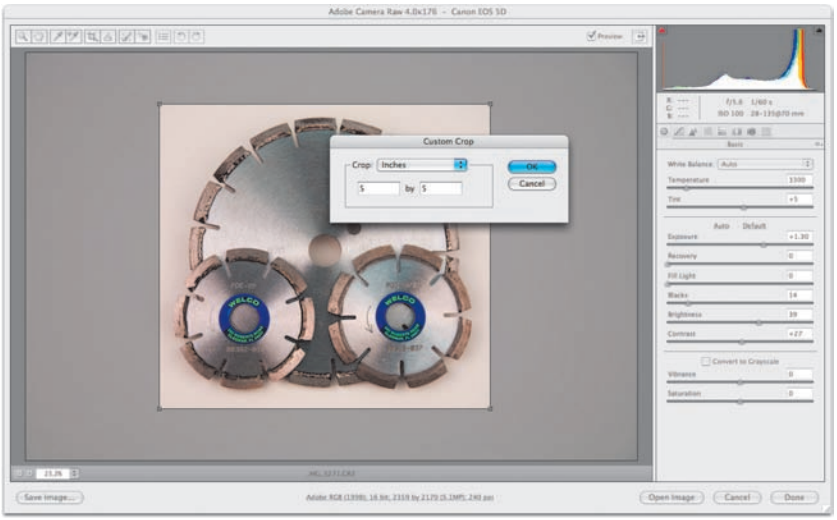


FIGURE 10.8
Clicking the Crop icon and choosing Custom allows you to enter precise width and height values.

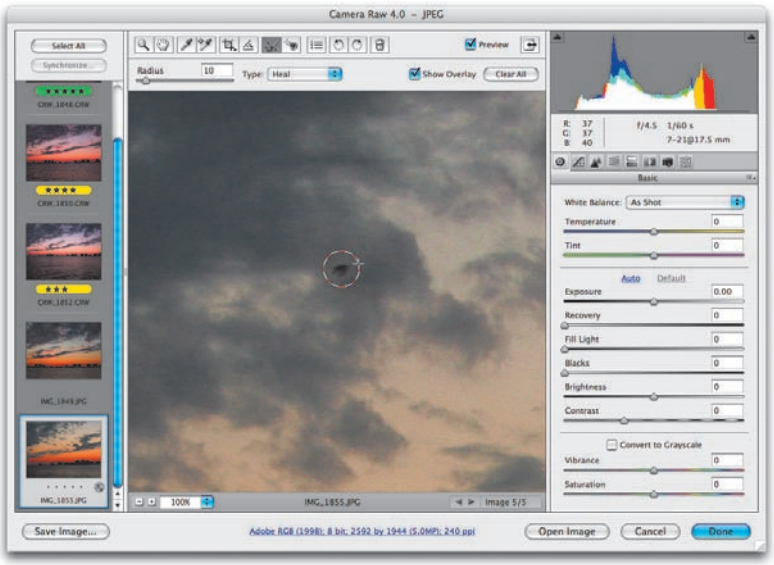
To fix a crooked image, click and drag a straight line with the Straighten tool across any area that should be perfectly horizontal or vertical. Letting up on the mouse displays a cropping rectangle, which shows you how the image will appear when opening it in Photoshop (see Figure 10.9).

FIGURE 10.9
Straightening an image in Camera Raw also crops the image.

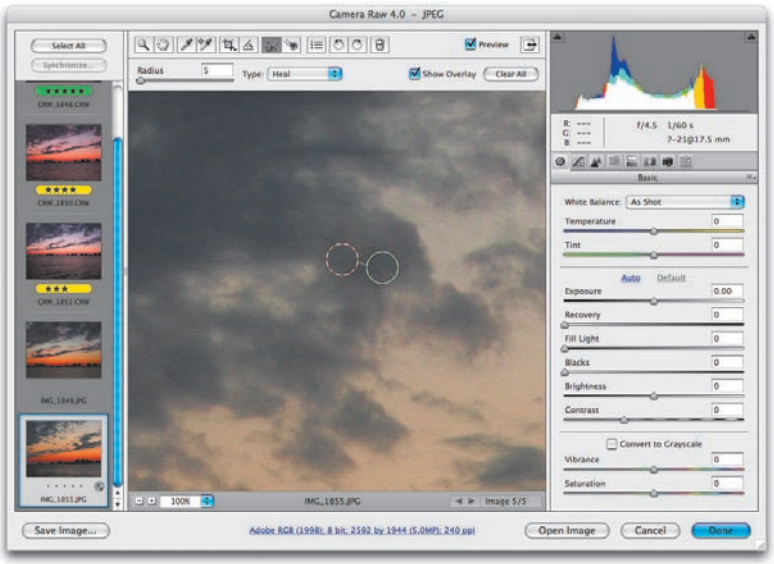
Retouch Tool The Retouch tool allows you to make quick touch-up repairs directly in Camera Raw. Although this tool is no substitute for the much more sophisticated retouch tools available in Photoshop (see Chapter 6), it can be used to quickly remove small, unwanted spots or blemishes present in any RAW files, TIFFS, or JPEGs that can be edited in Camera Raw. You might consider using this tool to quickly clean up images prior to creating a photo contact sheet through Bridge (see Chapter 11, "CS3 Integration"). By doing so, you can quickly clean up any small noticeable blemishes that would otherwise appear in the thumbnails. However, all other print image retouching processes should be done in Photoshop and not in Camera Raw.

To use the Retouch tool, select it from the toolbar at the top of the window. Then, from the Type drop-down list, choose whether to Heal or Clone. Healing is generally a softer, much less noticeable retouching technique, and is best used for removing spots and blemishes. Choose a brush radius setting and click once over the center of the spot with the tool. Camera Raw samples from the nearest available image area and applies the retouching. Once retouching is applied, two circles are displayed over the image area: a red circle to indicate the retouched area and a green circle to indicate the sampled area (see Figure 10.10). You can hide and show these circles by toggling the Show Overlay control.

FIGURE 10.10
Spot healing with the Retouch tool in Camera Raw



Before

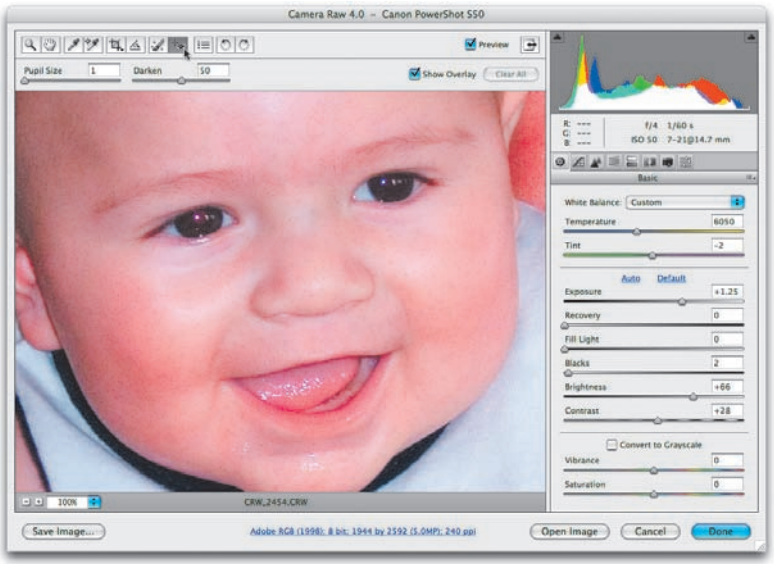


After

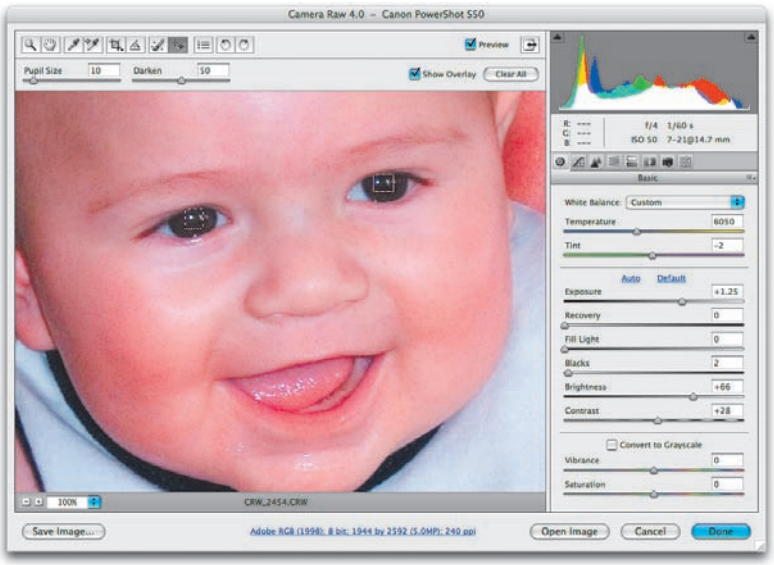
If you didn't quite get the Radius setting right on your first try with the Retouch tool, click the Clear All button to remove all applied retouching. You can then reset the Radius setting and try again. Another much easier way to go about this is to marquee over the retouch area. To do so, center the crosshair cursor over the spot and drag out.

Red Eye Removal Tool The Red Eye Removal tool in Camera Raw works exactly like the Red Eye Removal tool in the Photoshop workspace (see Chapter 6, "Retouching and Enhancing for Print"). Set the preferred Pupil Size and Darken Amount values and click anywhere near the red pupil (see Figure 10.11). Photoshop automatically locates the red color, removes it, and darkens the area.

FIGURE 10.11
Removing red-eye with the Camera Raw Red Eye Removal tool



Before



After

The Darken Amount setting determines how dark the pupil will become when clicking with the tool. If the tool makes the pupil appear solid black, choose Edit ➢ Undo (⌘/Ctrl+Z), lower the Darken Amount percentage, and click again.

Higher Pupil Size settings tend to hide detail in the pupil. To retain detail when removing red-eye, choose Pupil Size settings that are between 10–30%. *Never* use the default 50% or above.

Preferences Toggle For graphic designers and production artists, I recommend leaving the Camera Raw preferences set to their defaults. There's really nothing here you can change that will make your workflow any better or faster. However, if you're interested in experimenting with some of these options, such as the Apply Auto Tone Adjustments feature, click the Preferences toggle button to open the Camera Raw Preferences dialog box and change the settings (see Figure 10.12). I prefer to apply auto tone adjustments manually to images as needed, rather than to every image I open in Camera Raw.

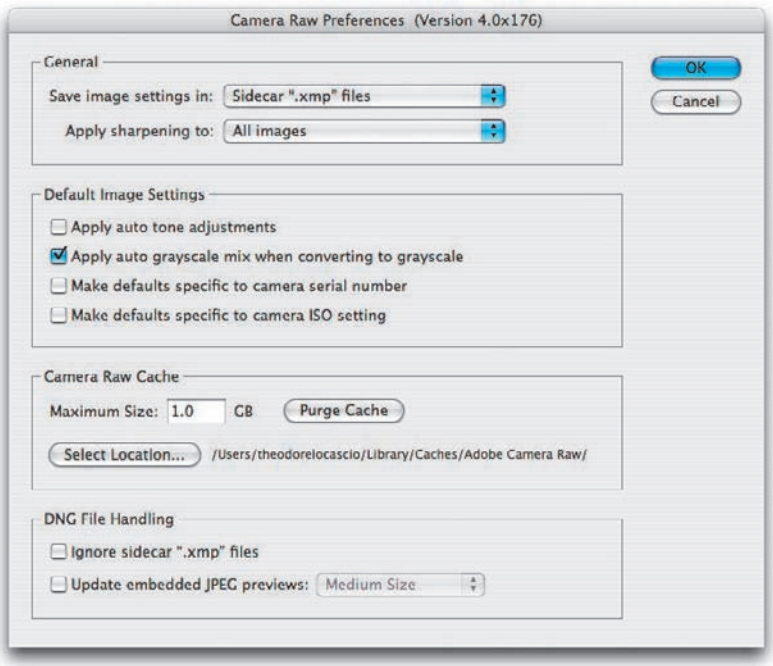


FIGURE 10.12
The Camera Raw Preferences dialog box

Workflow Options Workflow options control how much information is delivered to Photoshop when the image is opened. At the bottom of the Camera Raw dialog box, underneath the image preview, there is a single line of blue, underlined text that describes the currently chosen workflow option settings. To access the Workflow Options dialog box and change these settings, click the workflow summary text (see figure 10.13).

Space From this menu, choose a working color space in Camera Raw (the range of colors your image is capable of using). For consistency when editing print images, always choose the same working RGB color space that is chosen in Photoshop's Color Settings dialog box (see the "Color Management: What Color Settings Should I Use?" section of Chapter 1, "Getting Started").

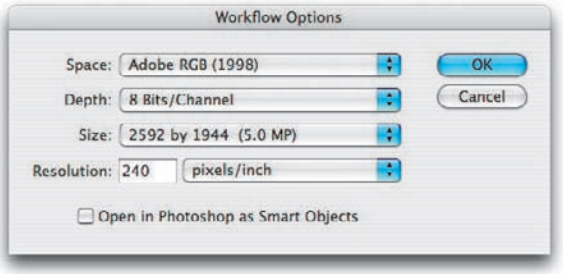


FIGURE 10.13
The Workflow Options dialog box

Depth This menu allows you to choose whether to edit the image data in 8 bits/channel or 16 bits/channel (see the upcoming "RAW Editing: 16-Bit vs. 8-Bit Mode" sidebar).

Size and Resolution These settings determine the size of your image when printed at 100%. The size setting in the list that does not have a + or – symbol displayed after it indicates the image size that the camera captured. Any other settings that are chosen cause Photoshop to scale the image up (+) or down (–) through a process called *interpolation* (see "What's My Resolution?" in Chapter 1). Scaling an image up or down affects its resolution, and ultimately its print quality. The downside to resizing an image in Camera Raw is that the Workflow Options dialog box does not automatically adjust the resolution setting as it does in the Image Size dialog in Photoshop when the Resample Image option is disabled. Therefore, you must manually calculate and change the resolution setting in Camera Raw before opening the image in Photoshop. I recommend leaving the Size Menu setting at what the camera captured and the Resolution setting at its default 240ppi. You're better off letting Photoshop do the resampling calculations by using the Image Size dialog after the image is opened.

Open In Photoshop As Smart Objects Enabling this option allows you to create a new document containing the source file as a placed smart object. Photoshop applies the same dimensions to the smart object as what is contained in the source file. Smart objects can be used to retain access to the adjustments made in Camera Raw even after the image is opened in Photoshop. Also, if you plan to apply smart filters to the image, you should enable this option, as they can be applied only to smart objects (see Chapter 8, "Layer Styles and Filter Effects").

RAW EDITING: 16-BIT VS. 8-BIT MODE

There are many advantages to working with RAW images, but what's the advantage of editing them in 16-bit mode? Well, 8-bit images contain 256 brightness levels that add up to 16.8 million colors, but 16-bit images contain 4,096 brightness levels that add up to billions of colors. Therefore, editing RAW files in 16-bit mode with the plug-in greatly increases your color gamut. Working in 16-bit mode can also be useful if the corrections you expect to make will be extreme, because they can cause posterization in 8-bit images due to data loss. However, despite the advantages of working with a wider gamut and protecting yourself from potential data loss, keep in mind that 99 percent of the printing devices available are capable of outputting images at only 8 bits per channel. This makes the difference between 8-bit and 16-bit modes hardly noticeable when the image is printed.

Histogram and Show Clipping The Camera Raw workspace also contains its own histogram, positioned in the upper right of the dialog. It is similar to working with the Histogram palette when all color channels are made visible. The Camera Raw histogram maps out all of the tonal values for the Red, Green, and Blue channels of the image once rendered. Notice that the histogram also displays cyan, magenta, and yellow. These colors represent the places where primary colors overlap. Magenta represents the overlap of red and blue without green; cyan represents the overlap of green and blue without red; and yellow represents the overlap of red and green without blue. The white area of the histogram represents luminosity levels in the image. The histogram changes to reflect adjustments made to the image by using the white balance and tonal controls.

Keep an eye on the histogram as you make your adjustments. In theory, a well-distributed histogram indicates an ideally exposed image. Clumps of color positioned to the far left or far right indicate that the image is either too dark or too light, respectively. If any one color is dominant, this indicates a color shift in that direction, which may or may not need to be adjusted, depending on the type of image you are working with.

You can use the Highlight and Shadow clipping controls along with the histogram to help locate areas of the image that contain what is known as *clipping*—pixel values that are too bright or too dark to be represented when the image is opened in Photoshop. When the Clipping Warning options are enabled, the plug-in displays any areas containing highlights with no pixels (aka *blowout*) in red, and any shadow areas containing pure black (aka *blocked shadows*) in blue (see Figure 10.14). After you've identified clipped areas of an image, you can correct them by using the tonal controls.

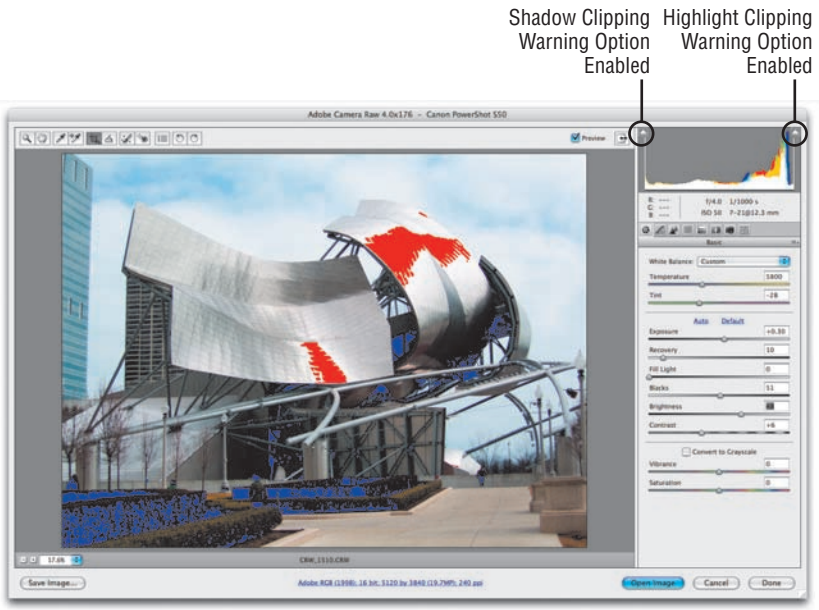


FIGURE 10.14
With the Clipping Warning options enabled, blown-out highlights appear red, and blocked shadows appear blue. Notice the clumps of color to the far right and the white line to the far left in the histogram. These also indicate that highlight and shadow clipping has occurred.

How to Read a Histogram

A *histogram* in Photoshop is a type of bar graph. Histograms are displayed in the Levels dialog box, the Histogram palette, and can now even be displayed in the Curves dialog box. A histogram for traditional 8-bit images contains 256 bars that vary in width and height to show the distribution of colors or tonal information in an image. Each bar represents one brightness value from black (on the far left) to white (on the far right). The height of each bar represents the number of pixels that correspond to that brightness value. The histogram helps you "see into" the image and locate where the darkest colors begin in each color channel and where the lightest colors end (for more on histograms, see Chapter 5).

Settings Settings can be chosen from the Camera Raw dialog flyout menu located to the right of the adjustment panel title bar (see Figure 10.15). Here you can select from preset, custom, or previously used plug-in settings:

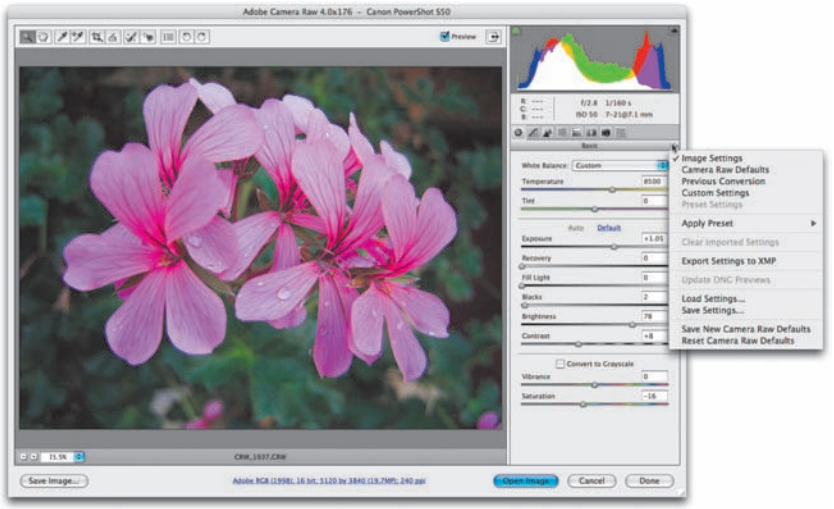


FIGURE 10.15
The Camera Raw dialog flyout menu

Image Settings applies the settings from the previous conversion of the image that you are currently working with. If the image has never been converted, this is the same as choosing Camera Raw Defaults.

Camera Raw Defaults applies the default settings that you've created. If you haven't created your own default settings, choosing this option applies the exposure, white balance, and sharpness settings as they were shot by the camera.

Previous Conversion applies the settings from the previous Camera Raw image converted.

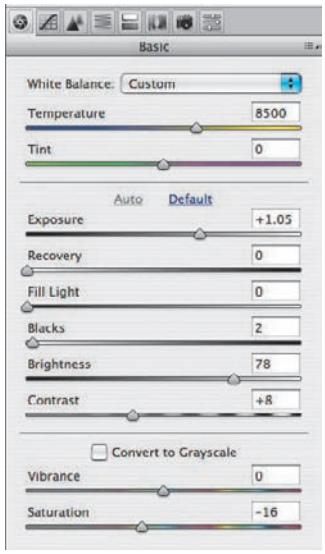
Custom Settings is automatically selected any time you move the white balance or tonal control sliders. You can save your custom settings as a new Camera Raw default by clicking the arrow to the right of the Settings menu and choosing Save New Camera Raw Defaults. To revert to the original camera settings, choose Reset Camera Raw defaults.

The Basic Tab

The Basic tab of the Camera Raw workspace is the most important control panel in the dialog box. It allows you to edit the image's data by altering its white balance and exposure settings. You can also use this dialog to adjust the image's shadow areas (the Blacks slider), and brightness and contrast—which has the same effect as the Brightness And Contrast dialog box in the CS3 workspace (see Chapter 5). There is also a new Fill Light feature that allows you to brighten shadow areas while leaving highlights unchanged, and a Recovery feature that allows you to darken highlight areas while leaving shadow areas unchanged. Fill Light and Recovery are Camera Raw's equivalent to working with the Shadows and Highlights sliders in the Shadows/Highlights adjustment dialog box (see Chapter 5).

At the bottom of the panel, there is a set of controls for adjusting vibrance and saturation, as well as an option for converting images to grayscale (see Figure 10.16).

FIGURE 10.16
The Basic tab



White Balance Settings

The White Balance menu settings located in the Basic tab allow you to adjust the temperature and tint of a RAW image by choosing a preset lighting condition from the White Balance menu, or adjusting the settings manually with the Temperature and Tint controls. For RAW images, the preset menu includes the following options:

As Shot applies the camera's chosen white balance settings at the time of exposure (see Figure 10.17).

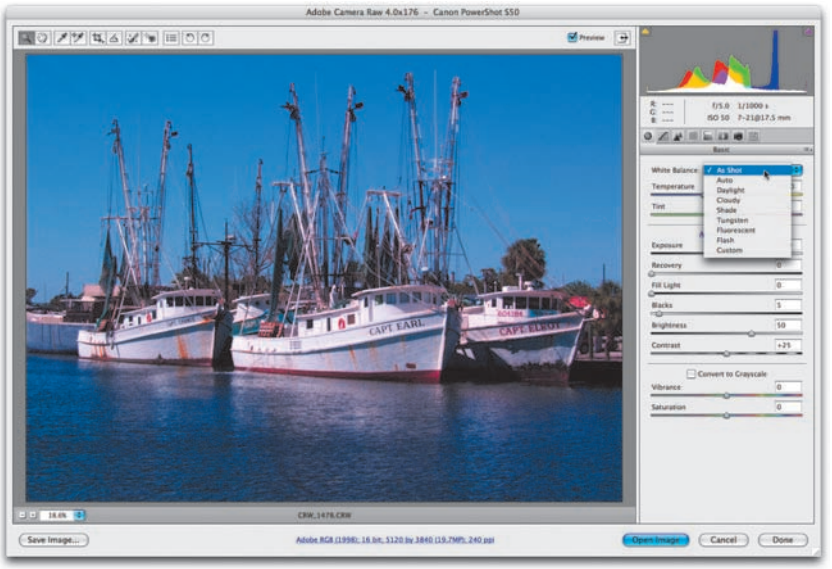


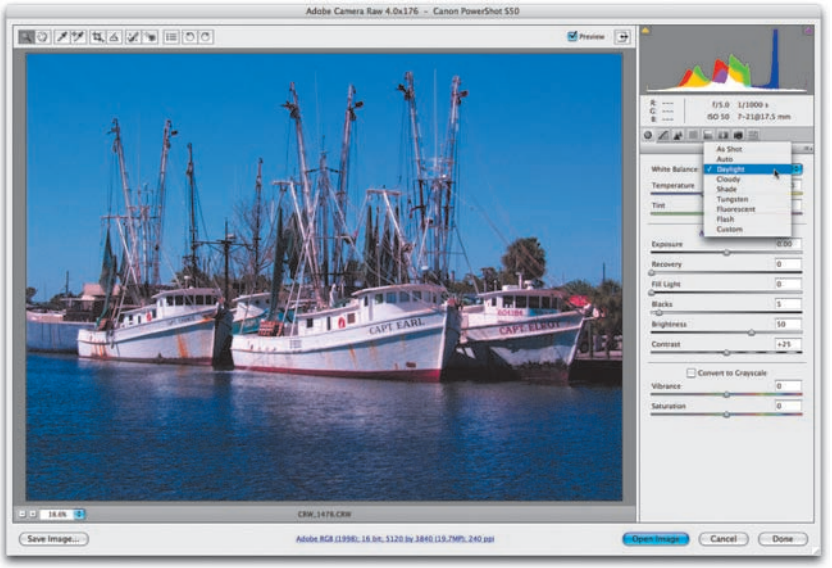
FIGURE 10.17
As Shot applied

Auto attempts to balance the temperature and tint of the image automatically (see Figure 10.18).

FIGURE 10.18
Auto applied

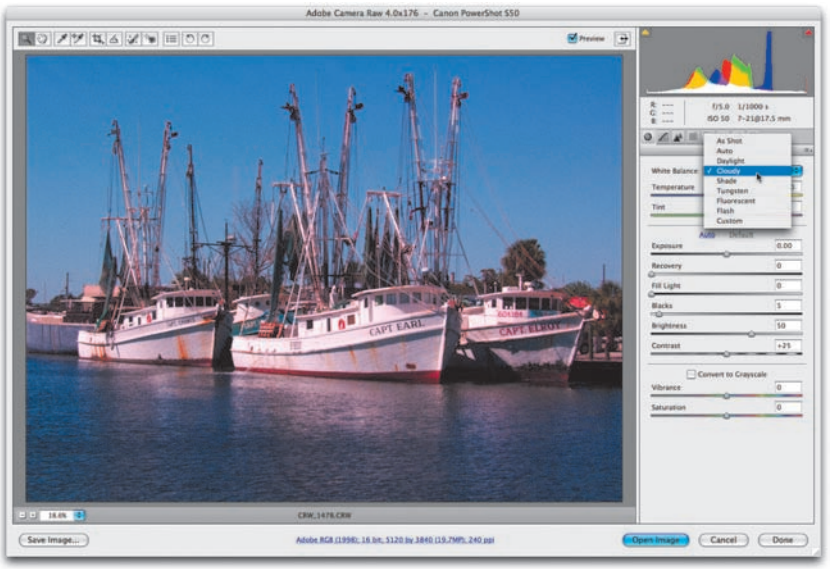
Daylight adjusts the temperature and tint to reflect normal (or neutral) lighting conditions (5500° Kelvin). For this boat image, these settings are the same as As Shot (see Figure 10.19).

FIGURE 10.19
Daylight applied



Cloudy adjusts the temperature and tint to reflect cool (or overcast) lighting conditions (6500° Kelvin) (see Figure 10.20).

FIGURE 10.20
Cloudy applied

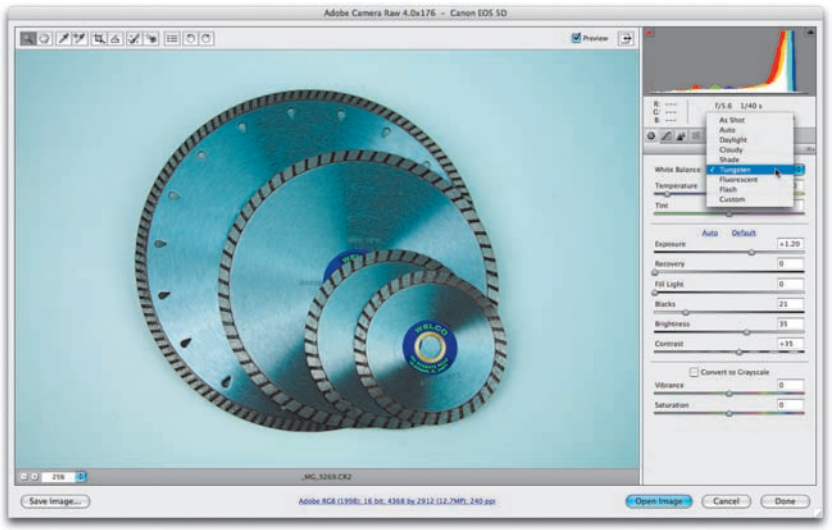


Shade adjusts the temperature and tint to reflect cool light, full shade lighting conditions (7500° Kelvin) (see Figure 10.21).

FIGURE 10.21
Shade applied

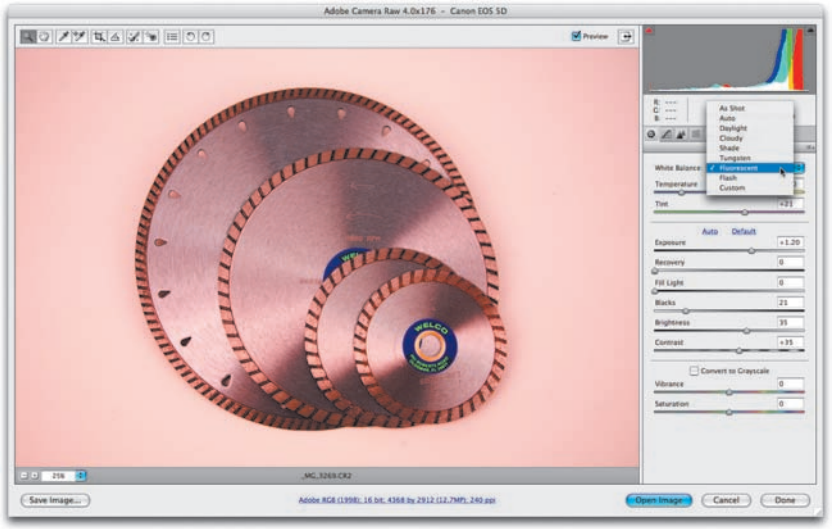
Tungsten adjusts the temperature and tint to reflect balanced tungsten lighting conditions (2850° Kelvin). The name refers to incandescent electric lamps, whose filaments are made of tungsten (see Figure 10.22).

FIGURE 10.22
Tungsten applied



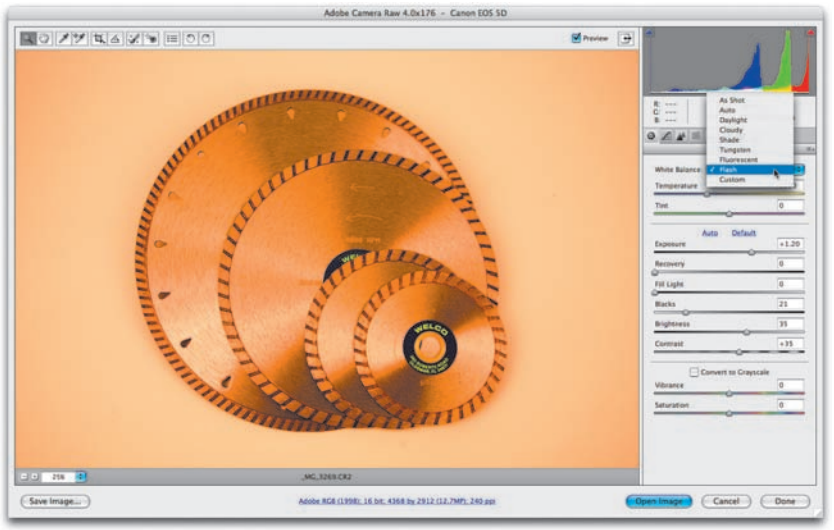
Fluorescent adjusts the temperature and tint to reflect fluorescent lighting conditions, usually containing a green cast (3800° Kelvin) (see Figure 10.23).

FIGURE 10.23
Fluorescent applied



Flash adjusts the temperature and tint to reflect balanced lighting conditions as produced by the use of a camera flash (5500° Kelvin, the same as Daylight) (see Figure 10.24).

FIGURE 10.24
Flash applied



Custom balances the image based on the settings applied manually with the Temperature and Tint controls. Moving the Temperature slider to the left makes colors appear cooler (or more blue); moving it to the right makes colors appear warmer (or more yellow). Moving the Tint slider to the left applies negative values and adds green to the image; moving it to the right adds positive values and adds magenta (see Figure 10.25).

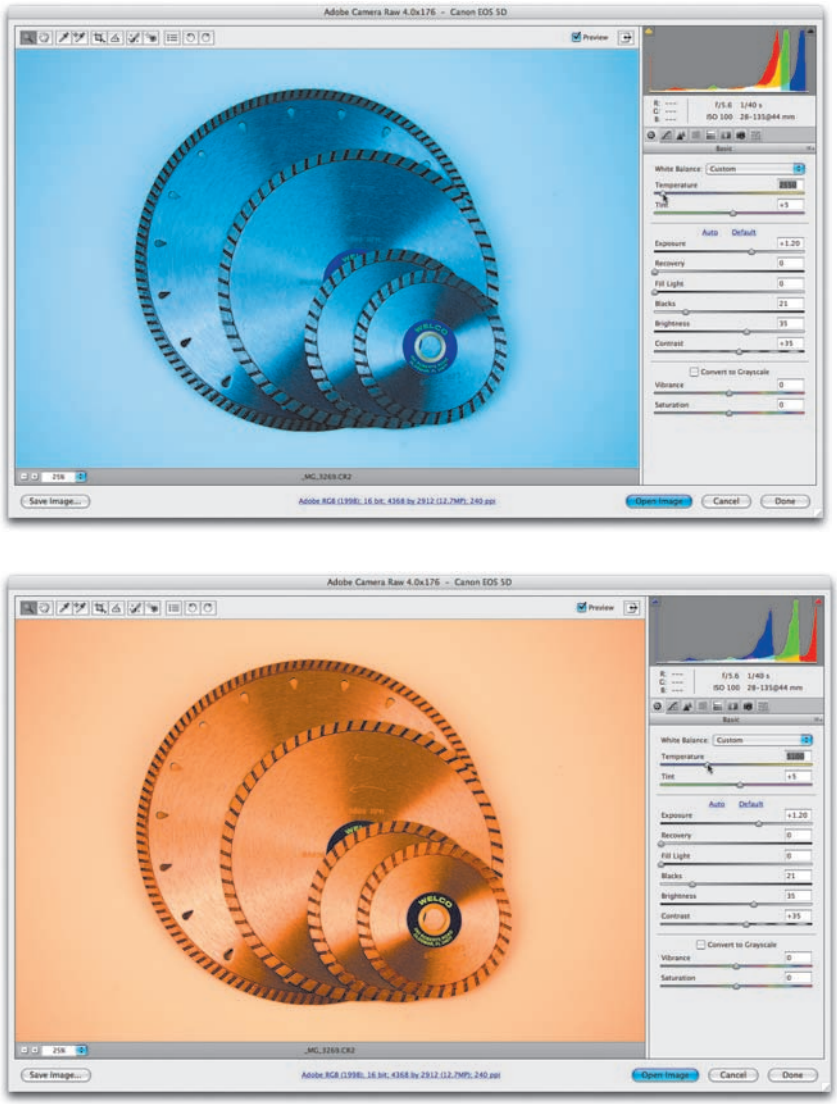
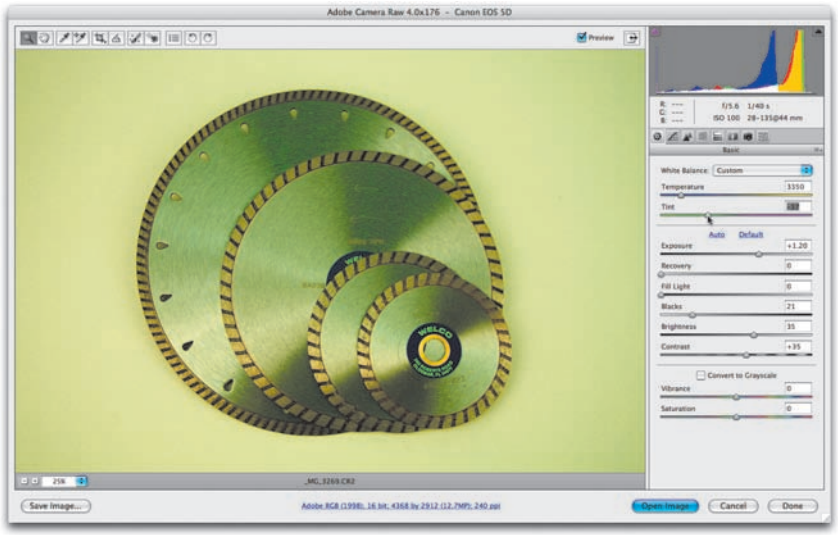
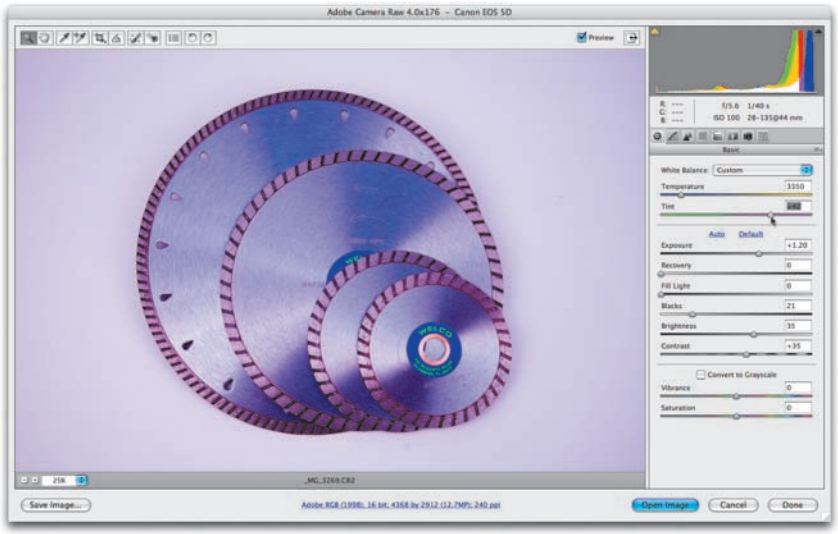


FIGURE 10.25
You can adjust color temperature and tint manually. (1) Moving the Temperature slider to the left makes colors appear cooler (or more blue); (2) moving it to the right makes colors appear warmer (or more yellow); (3) moving the Tint slider to the left applies negative values and adds green to the image; and (4) moving it to the right adds positive values and adds magenta.





As you can see, the top half of the RAW white balance preset options (except Auto) are meant for balancing outdoor lighting, and the bottom half for indoor lighting (except Custom). Note that when working with TIFFs and JPEGs, the only preset options available are As Shot, Auto, and Custom.

Tonal Controls

Below the Temperature and Tint controls in the Basic tab is a second group of sliders that allow you to apply tonal adjustments. To apply an automatic adjustment, click the word Auto above the sliders. In most cases, these auto settings do a great job of adjusting the image; however, to apply a

specific adjustment or create a certain effect, you can always adjust the image manually by moving the sliders. Figures 10.26 through 10.33 illustrate the effects of increasing or decreasing the tonal controls.

Exposure Moving the slider to the right increases the exposure, and as a result, lightens the image; moving it to the left decreases the exposure and darkens the image (see Figure 10.26).

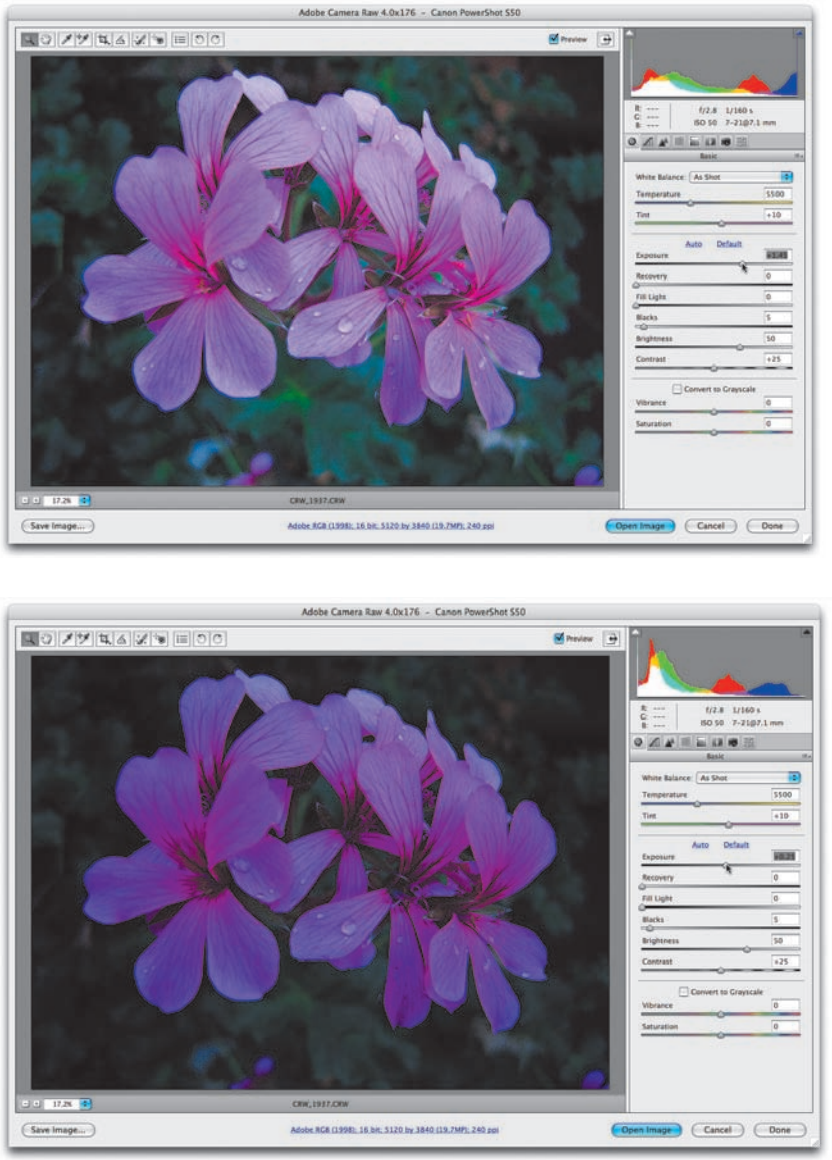


FIGURE 10.26
Increasing the exposure lightens the image (top). Decreasing the exposure darkens the image (bottom).

Recovery This slider works a lot like the Highlights slider in the Shadows/Highlights adjustment dialog (see Chapter 5). Moving the slider to the right allows you to darken highlight areas while leaving shadow areas unchanged (see Figure 10.27).

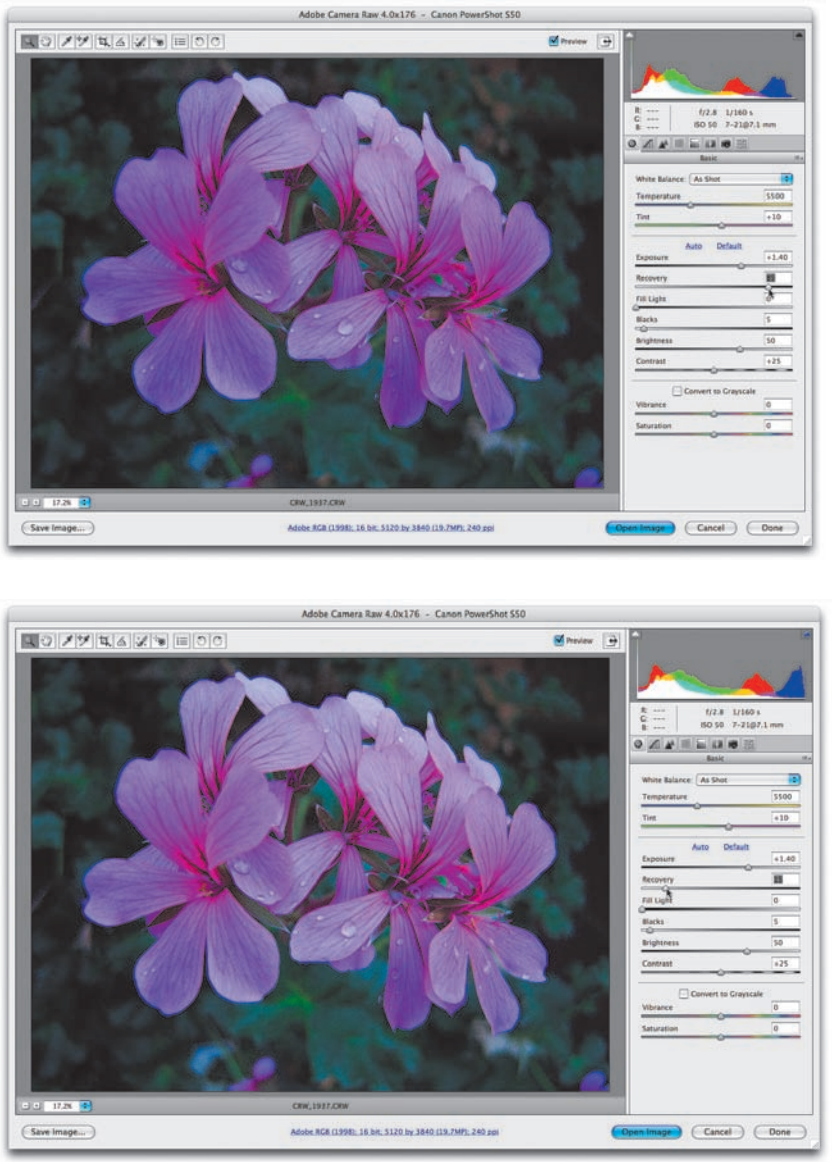


FIGURE 10.27
Increasing the Recovery value darkens the highlight areas (top). Decreasing the Recovery value lightens them (bottom).

Fill Light This slider works a lot like the Shadows slider in the Shadows/Highlights adjustment dialog (see Chapter 5). Moving the slider to the right allows you to brighten shadow areas while leaving highlights unchanged (see Figure 10.28).

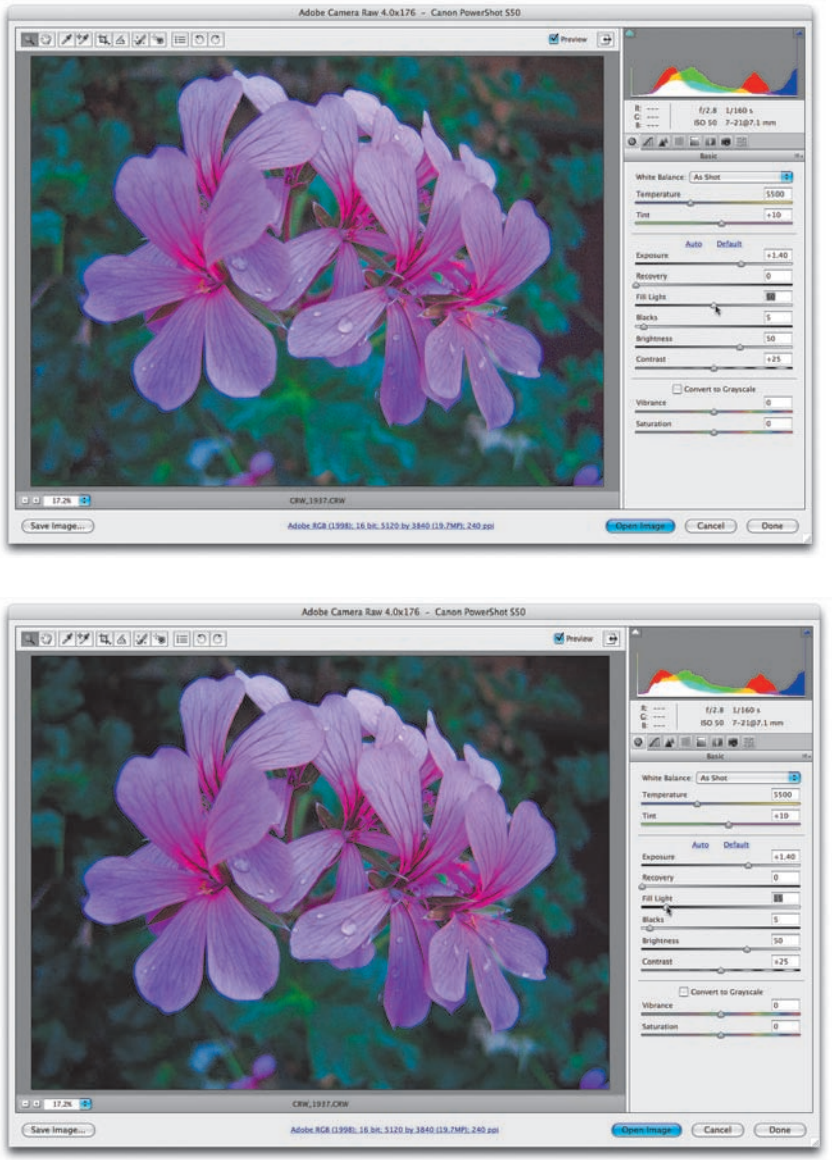


FIGURE 10.28
Increasing the Fill Light value lightens the shadow areas (top). Decreasing the Fill Light value darkens them (bottom).

Blacks Moving the slider to the right increases the density of the shadow areas, and as a result, darkens the image; moving it to the left lightens the shadow areas. Highlight areas are not affected by this adjustment (see Figure 10.29).

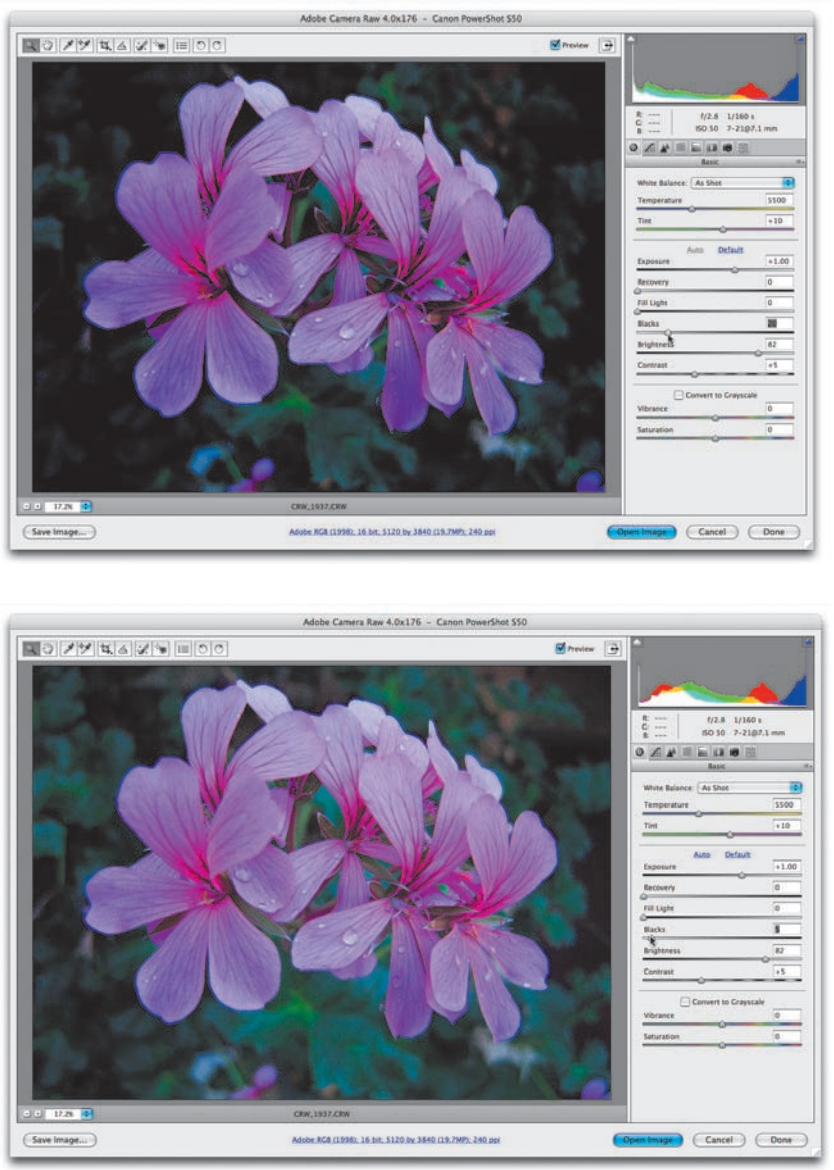


FIGURE 10.29
Increasing shadow density darkens the image (top). Decreasing shadow density lightens it (bottom).

Brightness This control is similar to the gamma slider located in the Levels dialog box (the middle slider under the histogram) in that it can be used to adjust the midtones of an image; the only difference is that the Brightness slider redistributes the midtones by using a linear adjustment. Moving the slider to the right lightens the image; moving it to the left darkens it (see Figure 10.30).

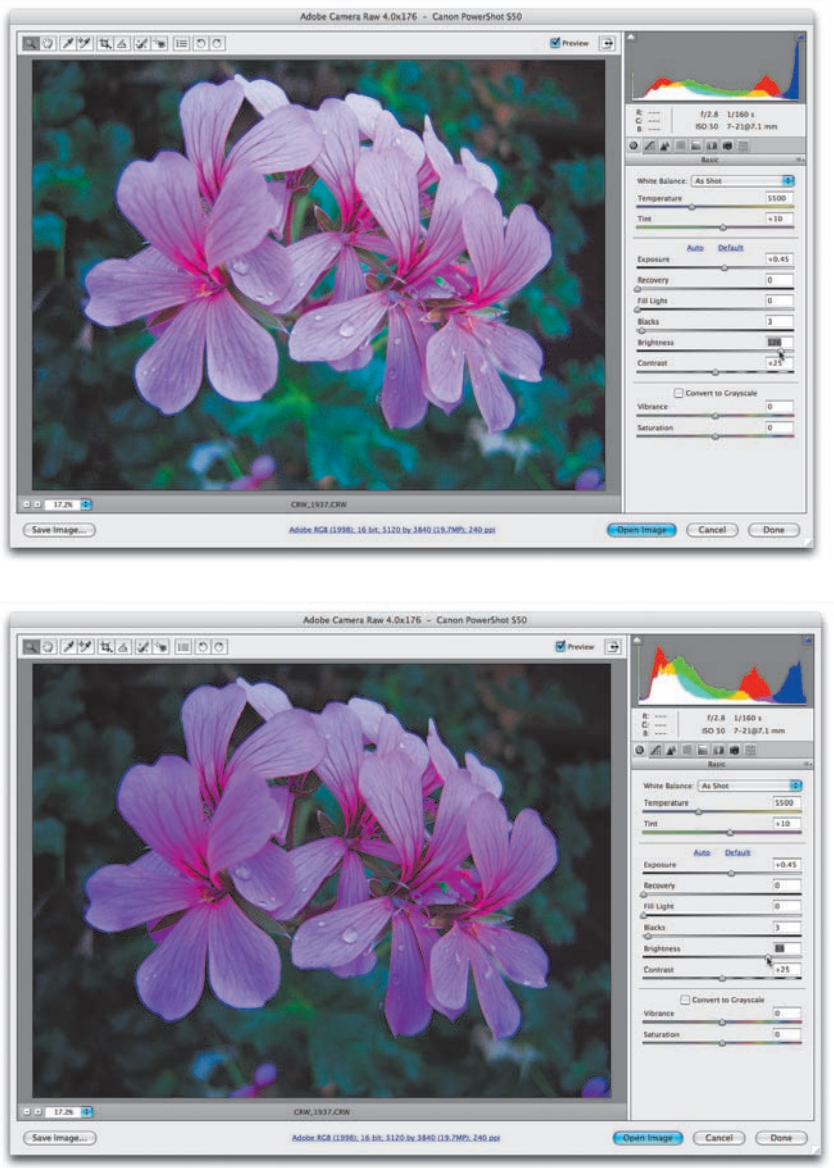


FIGURE 10.30
Increasing brightness lightens an image (top). Decreasing brightness darkens it (bottom).

Contrast Moving this slider to the right expands the histogram to increase contrast between pixels; moving it to the left compresses the histogram to decrease contrast (see Figure 10.31).

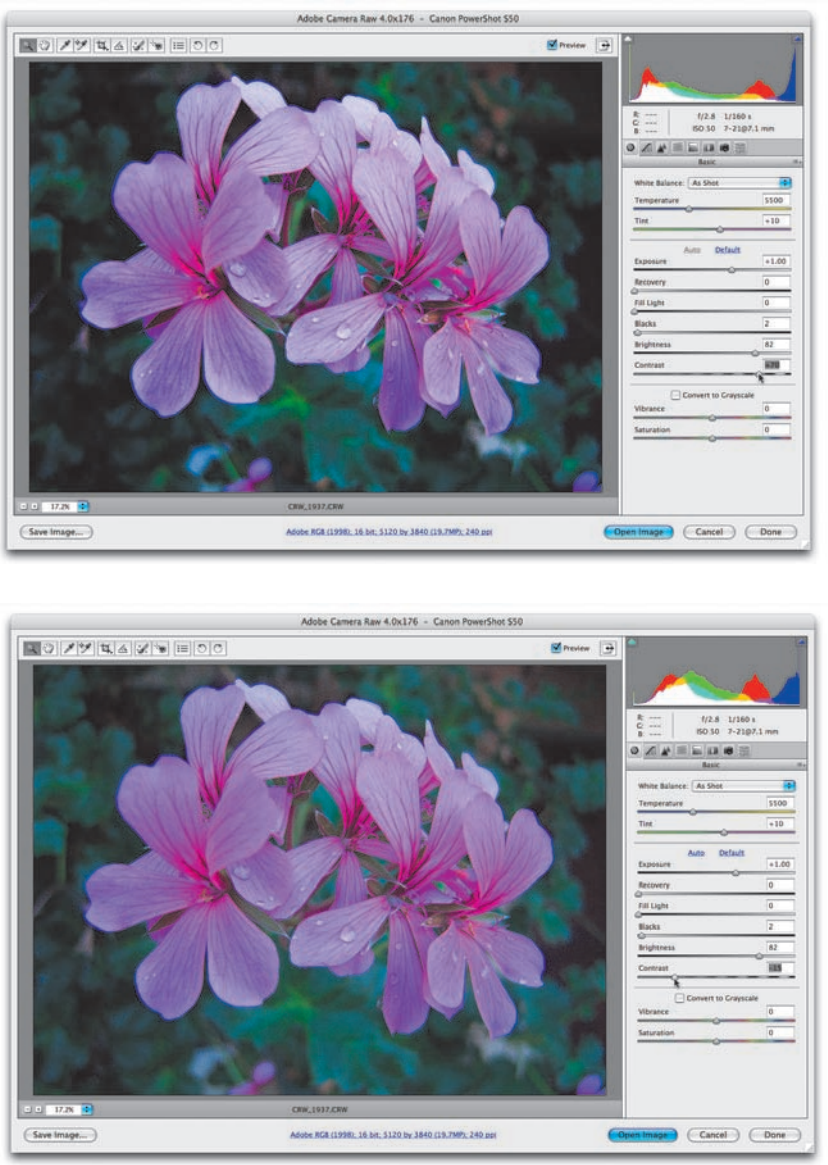


FIGURE 10.31
Increasing contrast (top) and decreasing contrast (bottom)

Vibrance This slider applies a nonlinear increase in saturation to lower-saturated pixels. It also contains a feature that helps prevent lighter flesh tones from becoming too red. In comparison with the Saturation control described next, the Vibrance control should prevent clipping from occurring as you increase the value (see Figure 10.32).

FIGURE 10.32
The Vibrance slider protects lighter flesh tones from becoming too red as you increase saturation. The original image (top); increasing the Vibrance setting (bottom).

Saturation This control is similar to the Saturation slider located in Photoshop's Hue/Saturation dialog box (the bottom slider) in that it can be used to adjust the strength, or color purity, of the image. Moving the slider to the right increases saturation; moving it to the left decreases it (see Figure 10.33).

FIGURE 10.33
Increasing saturation (top) and decreasing saturation (bottom)

Tone Curve

The Camera Raw dialog box also contains its own curves controls that allow you to make precise tonal adjustments, just as you would by using the Curves dialog box in the Photoshop CS3 workspace (see Chapter 5). You can work with tonal curves in Camera Raw by using traditional points or parametric sliders (see Figure 10.34). Click the Point or Parametric tab to access either panel.

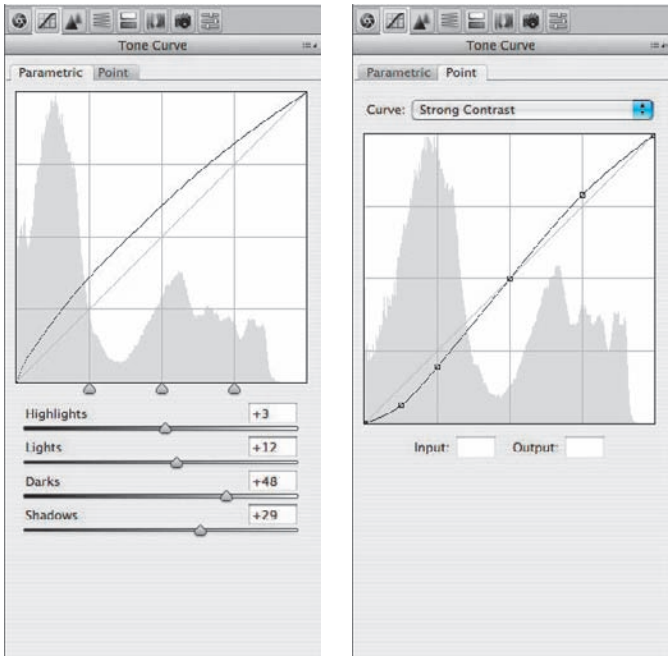


FIGURE 10.34
The Tone Curve Parametric tab (left) and Point tab (right)

The Point panel works similarly to the Curves dialog when it is set to Light display in Photoshop (see Chapter 5). This means that when a selected point along the curve is moved up, that area of the image becomes lighter, and when it is moved down, it becomes darker. As you hover the cursor over the image and press ⌘/Ctrl, Photoshop displays a circle along the diagonal line that represents the corresponding gray value for that area in the image. You can add a control point along the curve by ⌘/Ctrl+clicking. Points can then be moved with the arrow keys, just as they can in the Curves dialog. To change your point selection along the curve, press Control/Ctrl+Tab. Doing so selects the next point on the right.

The Parametric panel combines sliders (similar to those found in Photoshop's Levels and Brightness/Contrast dialog boxes) with the Curves graph. Rather than clicking on the baseline to add points and move the curve, you can make adjustments by moving any of the four slider controls: Highlights, Lights, Darks, and Shadows. As you move the sliders, the curve adjusts itself automatically.

For both the Parametric and Point tabs, the curves grid is permanently displayed in quarter tone (25%) increments and cannot be changed to 10% increments as in the Curves dialog.

You can also apply a preset contrast setting by choosing one from the Point Curve menu (see Figure 10.35). Depending on the image you're working with, choosing one of these presets can be

a good starting point when making tonal adjustments in Camera Raw. In Figure 10.35, I applied the Strong Contrast preset to make the forefront image stand out even more against the blurred background, and then adjusted the curve by moving the point in the upper right down a bit to bring back some of the detail in the snow.

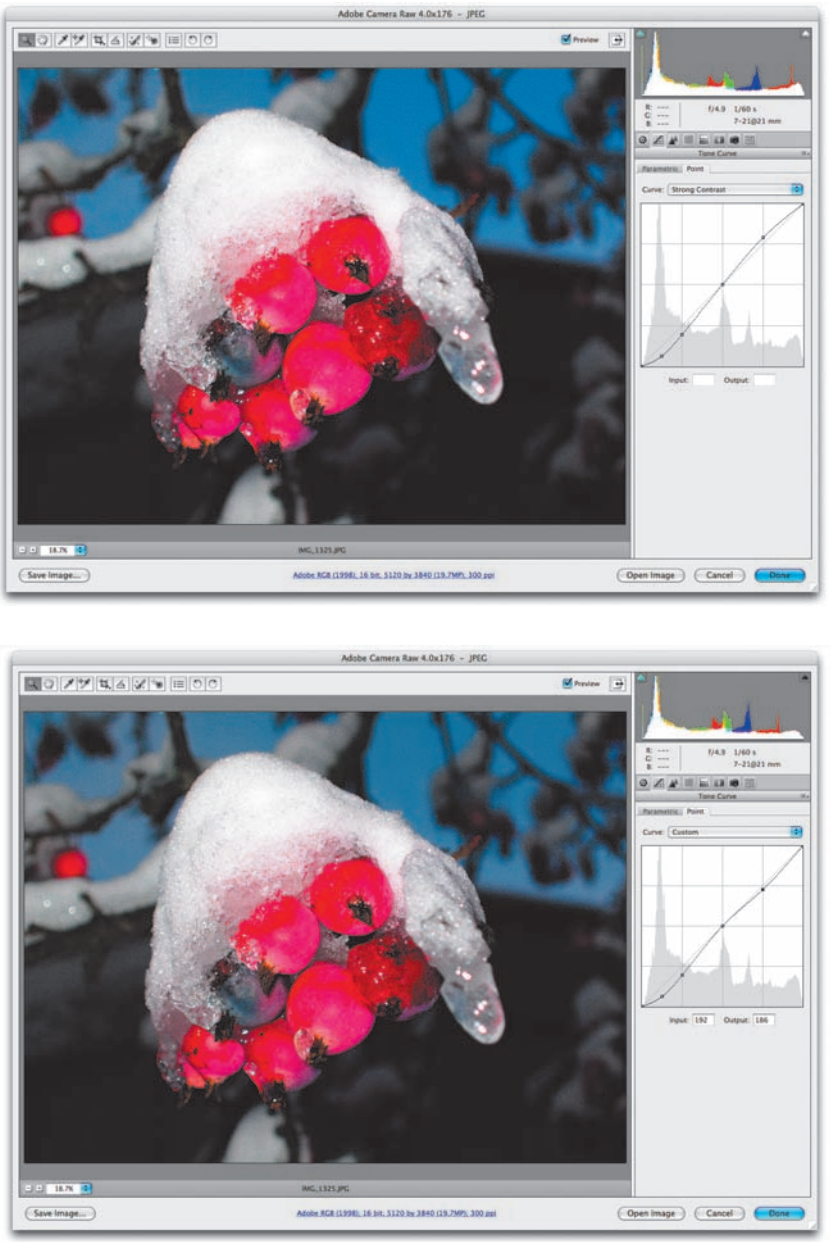


FIGURE 10.35
The Strong Contrast curve preset (top); adjusting the preset slightly (bottom).

HSL/Grayscale

Click the H tab to access the HSL/Grayscale control panel. This panel allows you to adjust colors in the image just as you would when using the Hue/Saturation and Black And White adjustment dialog boxes in the Photoshop CS3 workspace (see Chapter 4, "Working with Color"). The main difference between this panel and the Hue/Saturation dialog is that all of the colors are displayed with their own slider controls (see Figure 10.36). You do not have to choose colors from a menu as you do with the Hue/Saturation adjustment dialog. Click the Hue, Saturation, or Luminance tabs to access the same color sliders for each control. Note that working with the Luminance panel in the Camera Raw workspace is the same as working with the Lightness slider in the Hue/Saturation dialog.

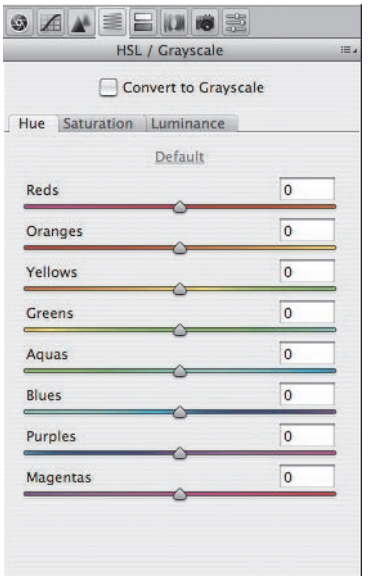


FIGURE 10.36
The Hue panel of the HSL/Grayscale tab

As you can see in Figure 10.37, enabling the Convert To Grayscale option allows you to work with controls that are very similar to what is found in the Black And White adjustment dialog (see Chapter 4). The sliders allow you to modify the influence of red, orange, yellow, green, aqua, blue, purple, and magenta in the resulting black-and-white image.

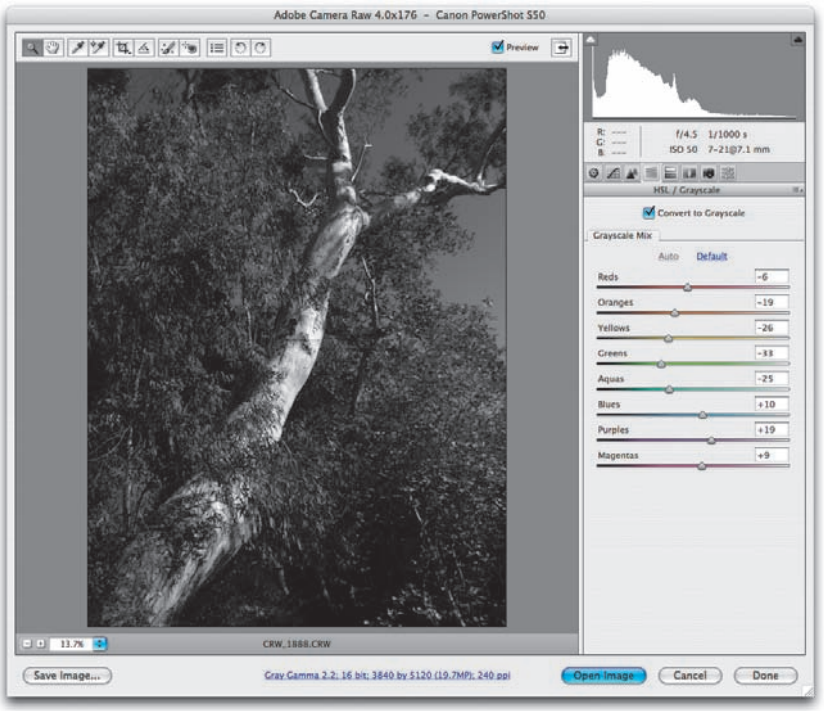


FIGURE 10.37
Enabling the Convert To Grayscale option in the HSL/Grayscale panel allows you to use the sliders to modify the influence of the various colors in the resulting black-and-white image.

Split Toning

You can use the controls located in the Split Toning tab along with the Convert To Grayscale option to create a sepia-tone effect directly in Camera Raw. To do so, first select the Convert To Grayscale check box in either the Basic or HSL/Grayscale tabs, and then make any necessary contrast adjustments by using the HSL/Grayscale sliders (see HSL/Grayscale explained in the preceding section).

The Split Toning sliders are very similar to the ones found in Photoshop's Hue/Saturation adjustment dialog. Using the Hue sliders, you can assign one color to the highlights and another to the shadows in order to "split" the tones of the image. You can control how vibrant the chosen Highlights and Shadows colors appear by moving the Saturation sliders. Use the Balance slider to favor one color over the other (shadow or highlight).

In Figure 10.38, I applied yellow to the highlights and red to the shadows. To create more of a sepia effect, I raised the saturation value for the highlights significantly higher than the red shadows. I also adjusted the balance setting to favor the yellow highlights.

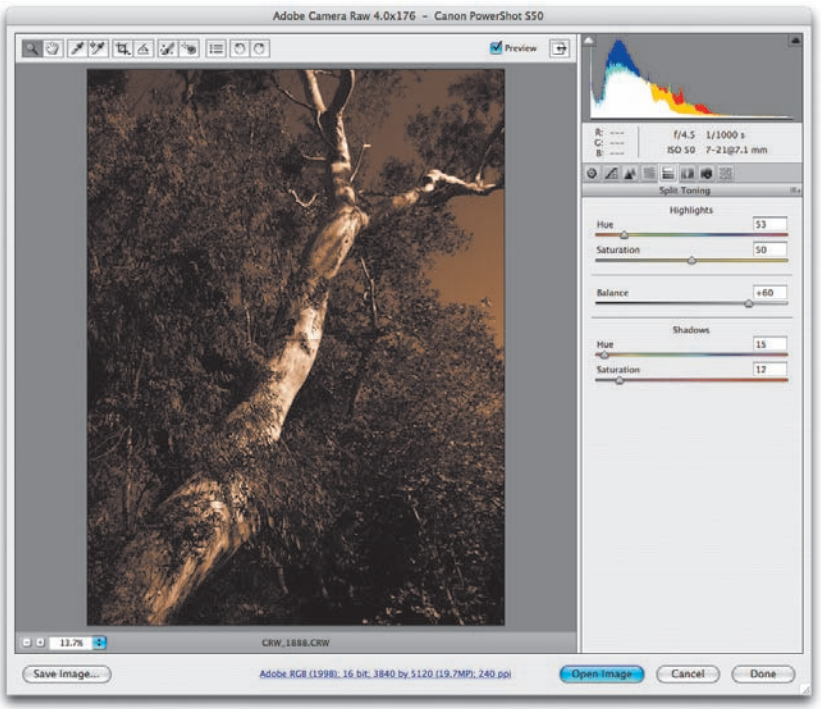


FIGURE 10.38
Creating a sepia-tone effect by enabling the Convert To Grayscale option and adjusting the Split Toning tab controls

The Detail Tab

On its Detail tab, Camera Raw offers three controls that let you enhance sharpness, apply luminance smoothing, and reduce color noise. Figures 10.39 through 10.41 demonstrate their effects.

Sharpening This control is similar to applying the Smart Sharpen or Unsharp Mask filters in Photoshop; it increases the amount of contrast between adjacent pixels. Unlike the Contrast slider, which affects the entire histogram, the Sharpening Amount slider increases edge definition and creates the appearance of sharper focus. Moving the slider to the right increases the sharpening effect; moving it to the left decreases it (see Figure 10.39).

To really see what's happening to your pixels when applying sharpening, you should always preview the image at 100%. If necessary, you can navigate around the image in the preview window with the Hand tool to see the how sharpening is affecting different areas of the image.

CAMERA RAW SHARPENING VS. FILTER SHARPENING

Once opened, the Camera Raw plug-in automatically sharpens the image based on the camera model, the image ISO, and exposure settings. Any further sharpening with the Sharpening slider is a step usually best saved for last. In most cases, it's better to leave the plug-in Sharpening setting alone and not make any adjustments. Instead, use the Smart Sharpen or Unsharp Mask filters after you've opened the image in Photoshop (see Chapter 9, "Reducing Noise and Sharpening").

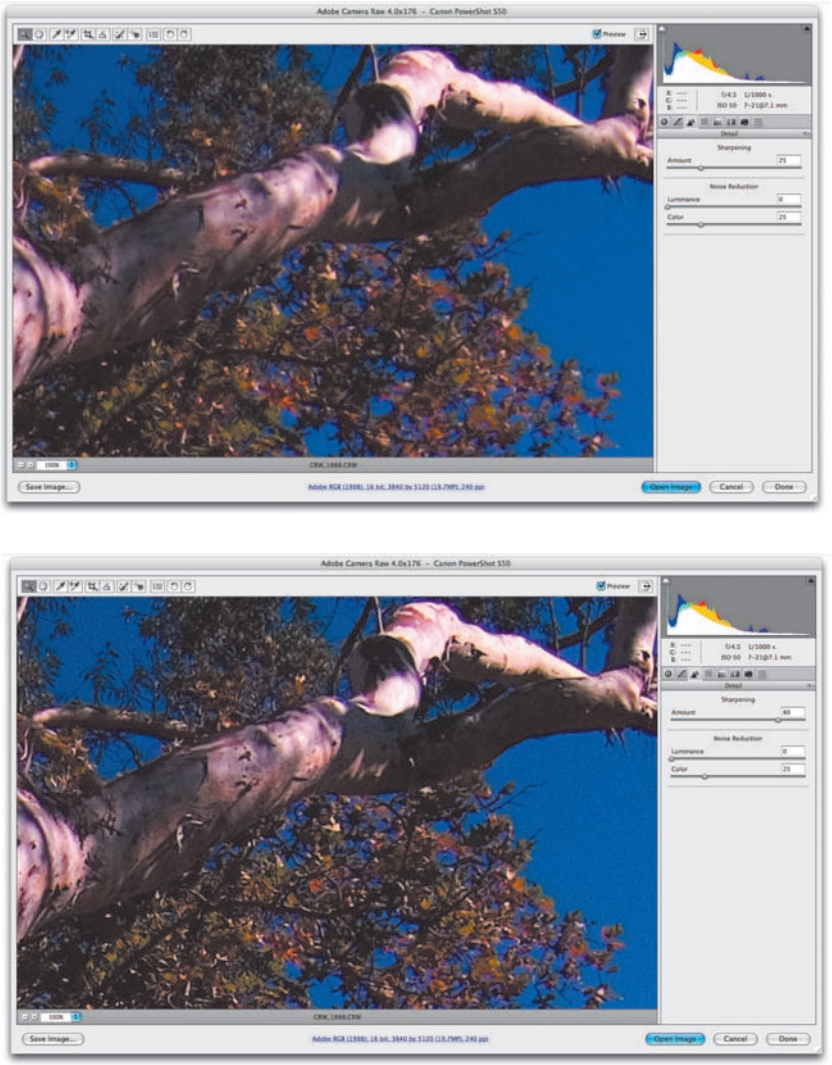


FIGURE 10.39
An image with the default Sharpness setting (top); the same image with increased sharpness (bottom).

Luminance Smoothing Shooting in low-light conditions can often cause random grayscale pixels (called *noise*) to appear in the image. Luminance noise is often caused by *oversharpening* an image as well. Too much noise can make your image look grainy. To soften these noisy areas, you can apply a Luminance Smoothing adjustment. Moving the slider to the right increases the smoothing effect; moving it to the left decreases it (see Figure 10.40). There is a delicate balance between softening luminance noise and blurring your image, so be careful not to overdo it.

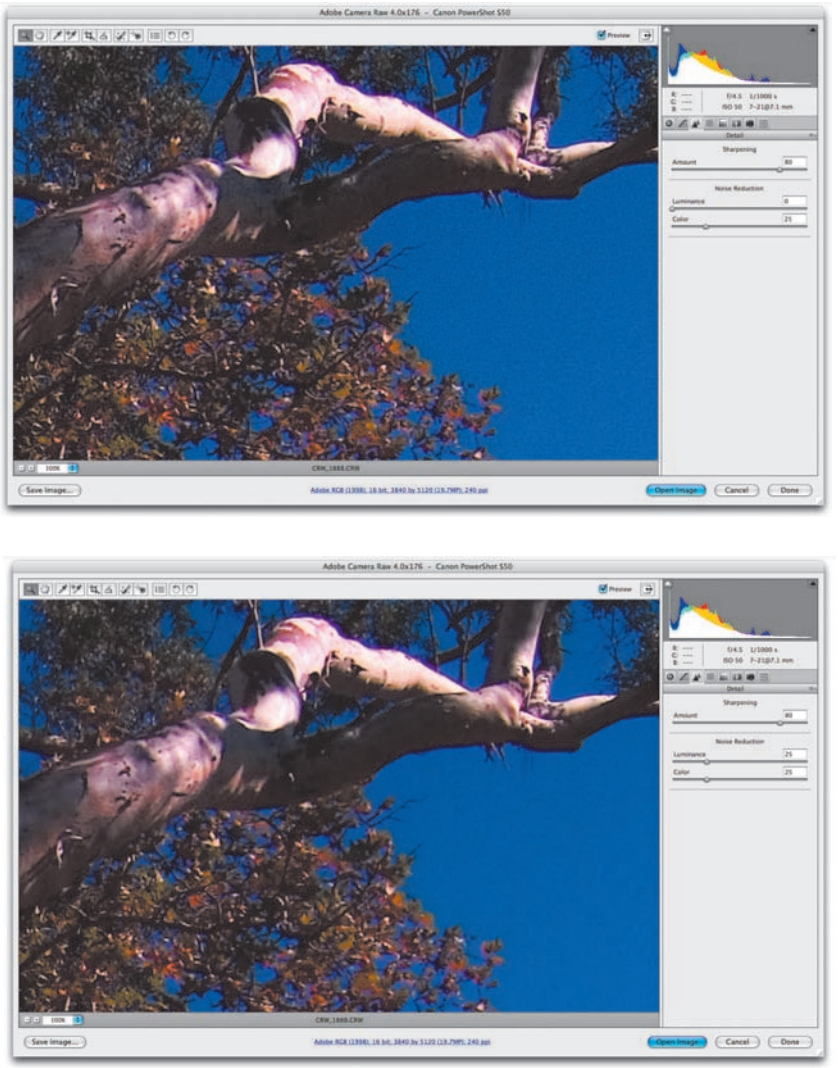


FIGURE 10.40
Before luminance smoothing (top) and after luminance smoothing (bottom)

Color Noise Reduction Adjusting the Color Noise Reduction slider reduces the amount of random color pixels (or noise) that results from variations in image hue and saturation. Moving the slider to the right increases the amount of color noise reduction; moving it to the left decreases it (see Figure 10.41).

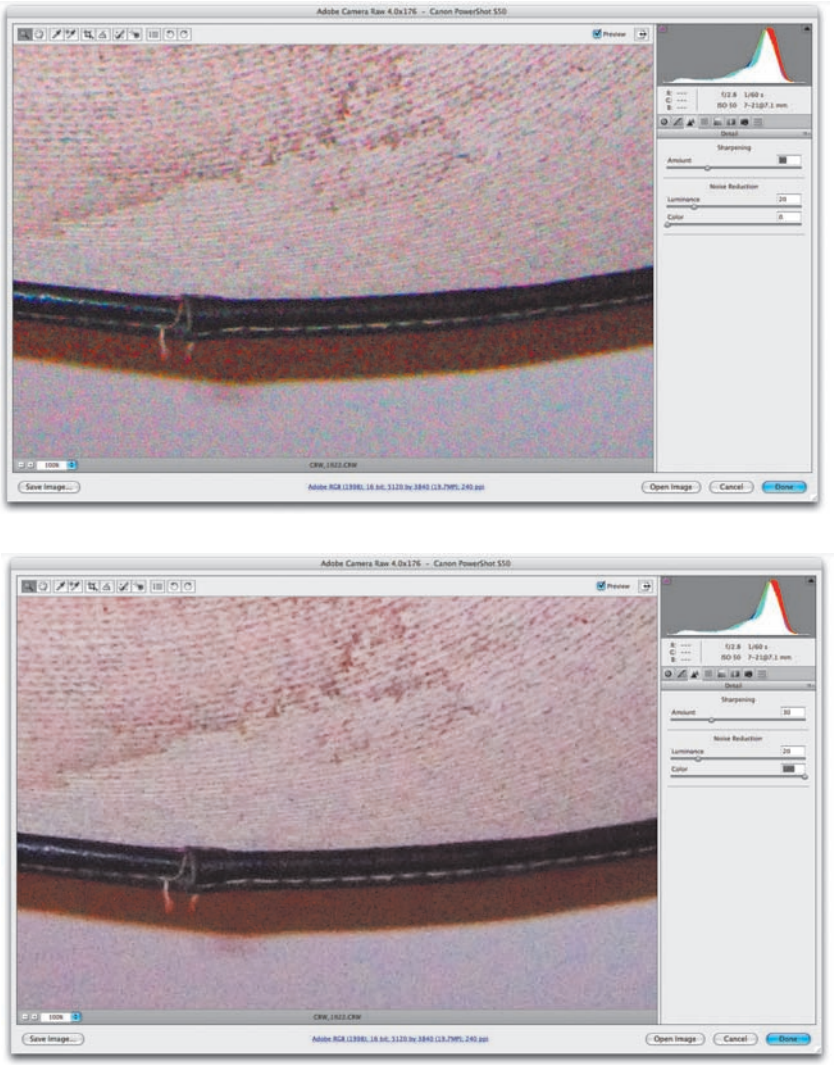


FIGURE 10.41
Before color noise reduction (top) and after color noise reduction (bottom)

Lens Corrections

The controls in the Lens Corrections tab can be used to fix specific image problems related to the lens that was used to take the photo. These types of adjustments are generally made by the photographer and not the layout artist, but on occasion you may find it necessary to make them yourself.

For example, if you've ever received an image that contains halos of color around high-contrast edges, you've been faced with a lens-related problem known as *chromatic aberration*. This happens when the lens (usually wide-angle) has problems focusing different wavelengths of light at different points. The higher the contrast in the image, the more noticeable the halo is.

If the halo is red on one side and cyan on the opposite, you can reduce it by moving the Fix Red/Cyan Fringe slider. If the halo is blue and yellow, move the Fix Blue/Yellow Fringe slider. Doing so scales the colors that make up the image, which can help reduce the appearance of the halo, but rarely gets rid of it entirely (see Figure 10.42).

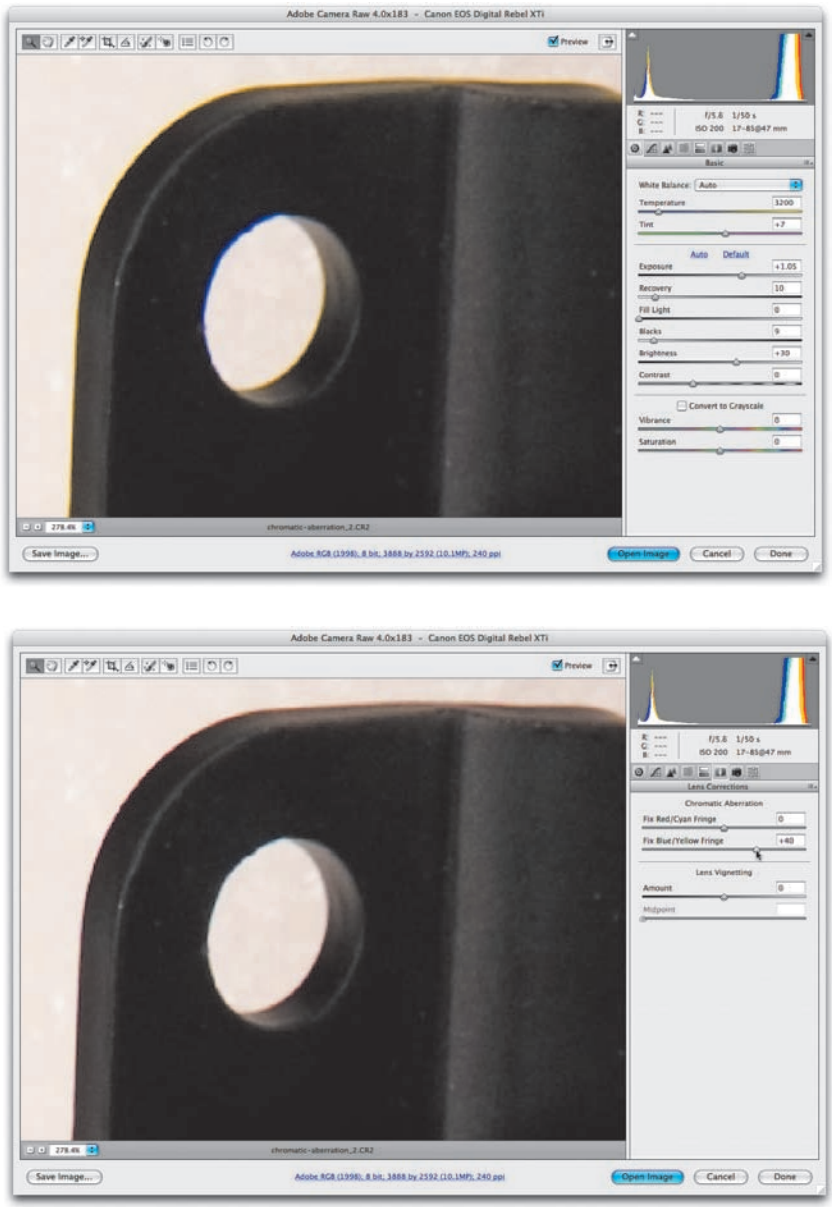


FIGURE 10.42
An example of chromatic aberration. Notice the yellow and blue halos around the high-contrast areas (top). Fixing chromatic aberration with the controls in the Lens Corrections tab (bottom).

The Lens Vignetting sliders allow you to make up for light that has fallen off the edge of an image. By definition, a *vignette* (an "old school" photography term) refers to an image that features a bright center and dark edges surrounding it. Vignettes can be very effective when used in a print layout, as they tend to draw the viewer's eye to the center of the image.

The Lens Vignetting Amount slider allows you to remove an existing vignette by lightening dark edges, or to create one by darkening them (see Figure 10.43). The Lens Vignetting Midpoint slider controls how far the edge moves in toward the center of the image.

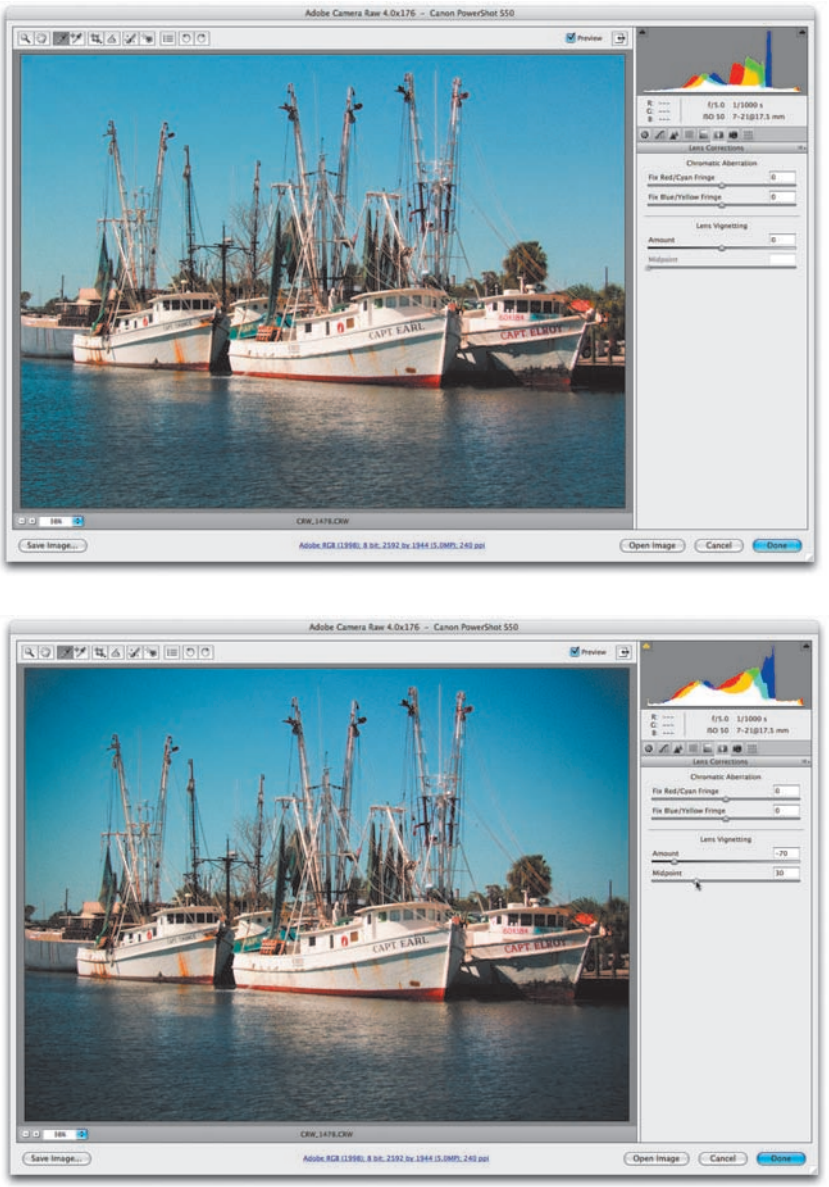


FIGURE 10.43
The original image (top). Applying a vignette with the Lens Corrections tab controls (bottom).

Camera Calibration

The controls in the Camera Calibration tab allow you to adjust Photoshop's interpretation of the color information provided by the camera that captured the image. For example, many digital cameras tend to produce images with a color cast in the shadow areas. By moving the Shadows Tint slider, you can shift the color present in the darkest areas of your image toward green (left) or magenta (right) and remove the cast.

The primary red, green, and blue Hue and Saturation sliders behave similarly to the sliders in the HSL tab. The intent here is to use these sliders to simulate the color produced by different traditional film types; however, you can also use them to correct or enhance color (see Figure 10.44).

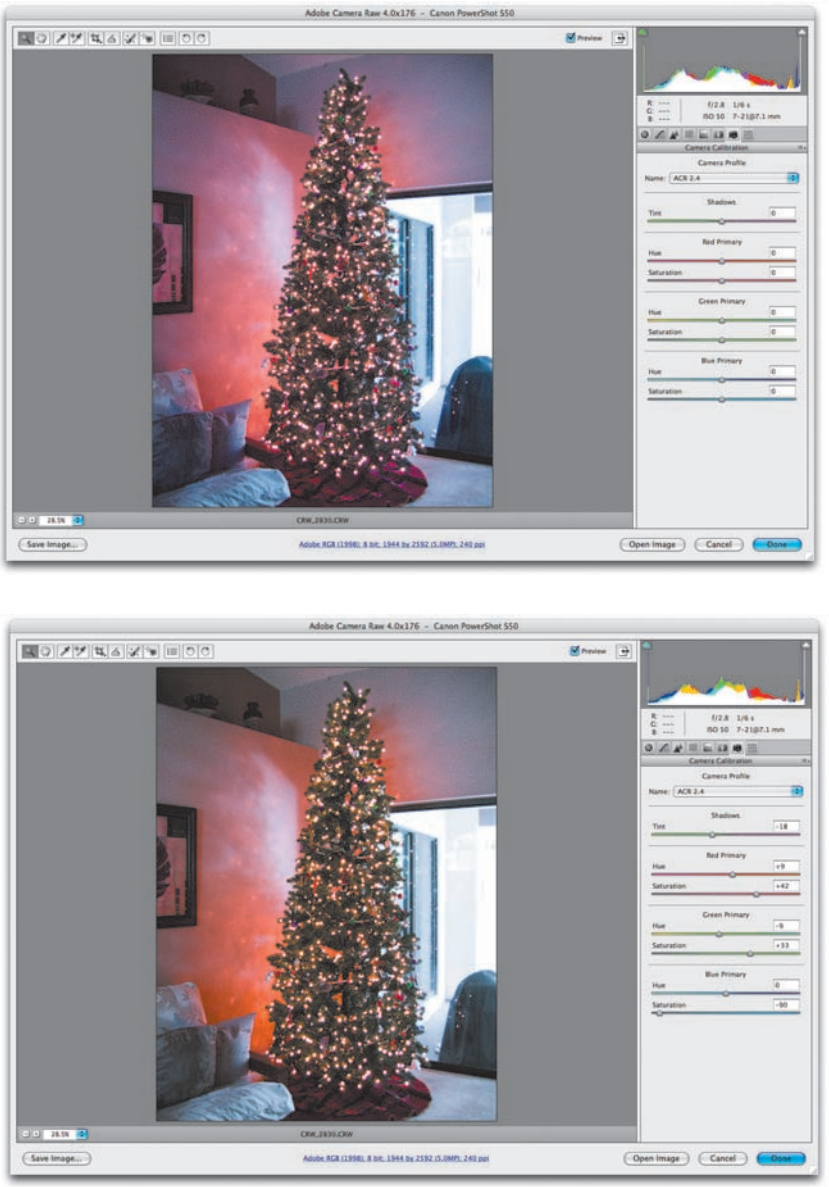


FIGURE 10.44
The original image (top). Adjusting color with the Camera Calibration controls (bottom).

The Presets Tab

The Presets tab allows you to save your favorite settings for later use with other images. Applying saved settings can be extremely helpful when preparing multiple images for print that were photographed by using the same camera under similar lighting conditions. Some prime candidates for applying saved settings are comparable catalog product shots, or similar headshots for a brochure.

From the flyout menu located in the upper right of the panel's title bar, choose Save Settings. This launches the Save Settings dialog box, where you can choose which of the Camera Raw adjustment settings you would like to save as a preset (see Figure 10.45).

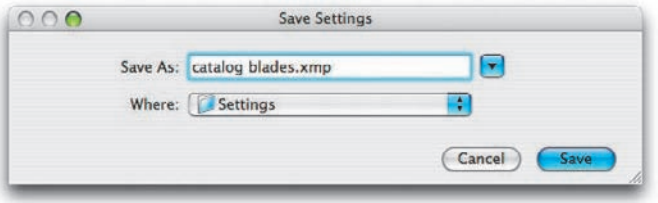


FIGURE 10.45
The Save Settings dialog box

Place a check next to the settings that you'd like to include, or choose from the individual options listed in the Subset menu at the top of the dialog. When all of the settings that you'd like to save are selected, click the Save button. In the dialog box that appears, enter a name for the preset and choose a location on your drive where you'd like to save the `.xmp` file. I find that it's much easier to manage these files when they're all saved in the default location.

Click OK to close the Save Settings dialog. The new preset is immediately displayed in the Presets tab, and you will always have access to it, no matter what images you open in Camera Raw. To apply a preset, open an image in Camera Raw and click the preset from the Presets tab list. The saved settings are immediately applied (see Figure 10.46).

Adjusting Multiple Images with Camera Raw

Camera Raw allows you to open multiple images in the dialog box at a time. This can be useful when applying presets to print images that contain similar characteristics, such as lighting, color, and contrast. The easiest way to go about doing this is to do the following:

1. Launch Adobe Bridge and select the thumbnails of the images you'd like to open (Shift+click to select adjacent images; ⌘/Ctrl+click to select nonadjacent images).
2. Double-click one of the selected images or press ⌘/Ctrl+O.

If you prefer, you can also select images from their system folder location and press ⌘/Ctrl+O, or choose Open With Adobe Photoshop CS3 from the contextual menu (Control+click—Mac, or right-click with a two-button mouse).

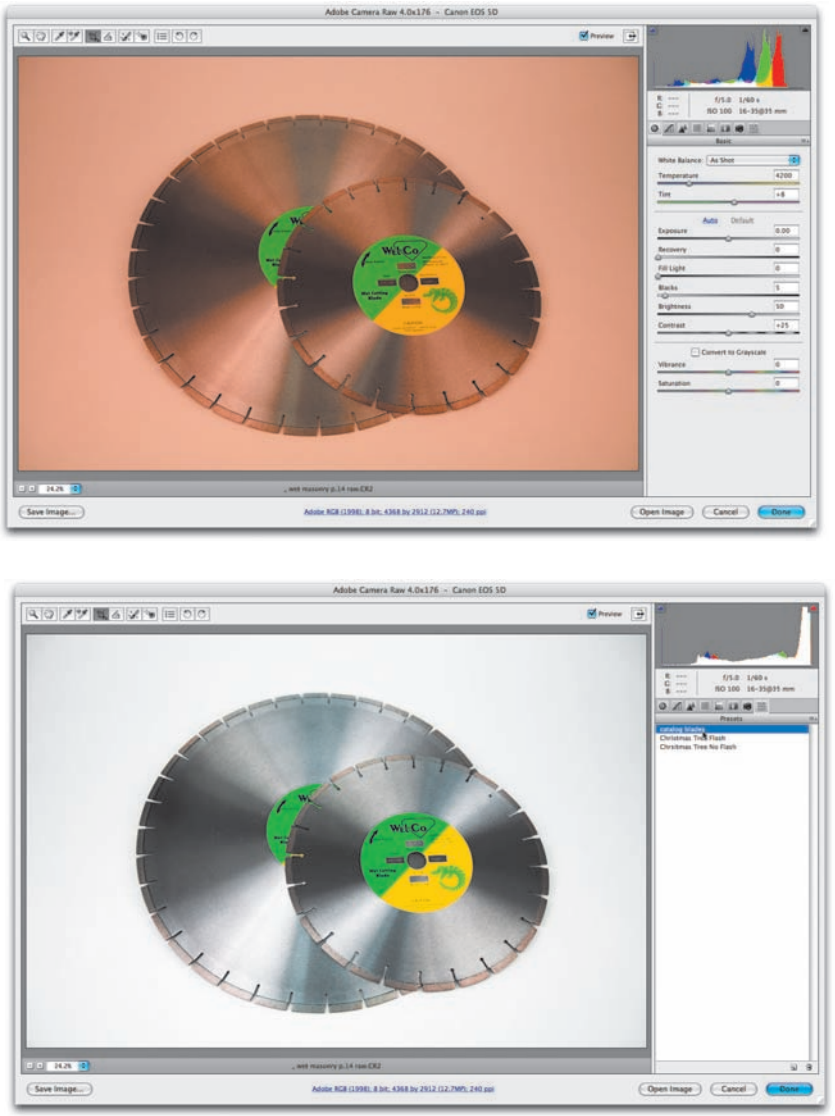


FIGURE 10.46
The original image (top). Applying saved settings with the Presets tab (bottom).

After the images are opened in Camera Raw, they appear in a vertical thumbnail list on the left side of the dialog. To increase or decrease the size of the thumbnails, you must expand or contract the vertical column by clicking and dragging the dividing bar on the right (see Figure 10.47).

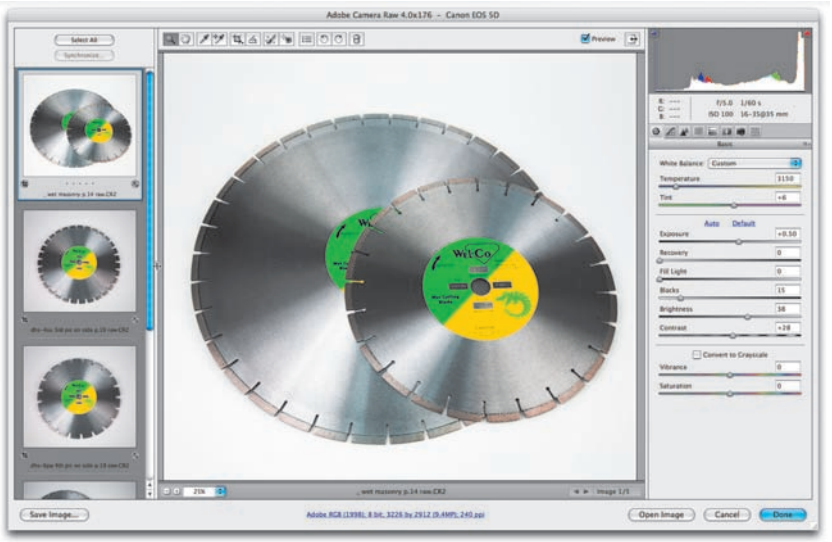


FIGURE 10.47
Expanding the thumbnails column

To adjust images individually, select the one you'd like to work with from the vertical thumbnail list. Once selected, the image automatically appears in the Preview window and you can proceed to make your adjustments. When you're finished, click the thumbnail of the next image you'd like to work with (see Figure 10.48).

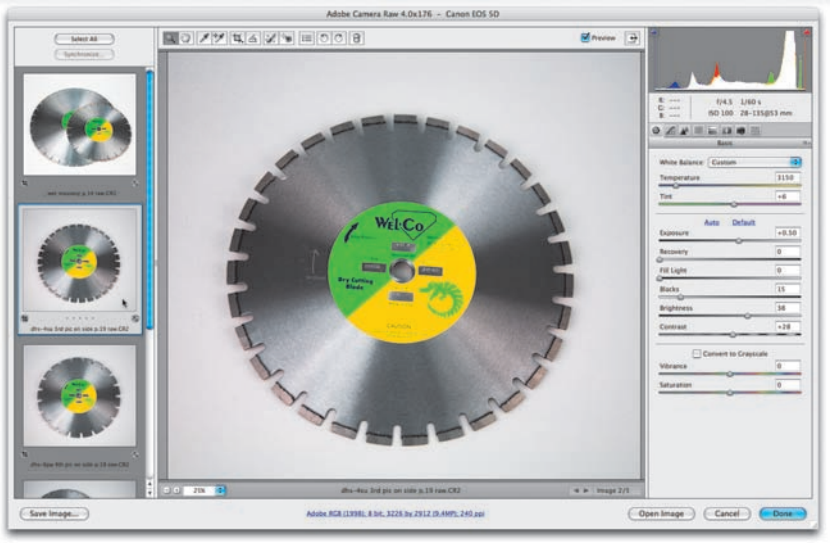


FIGURE 10.48
Selected images appear outlined and highlighted in the vertical thumbnail list.

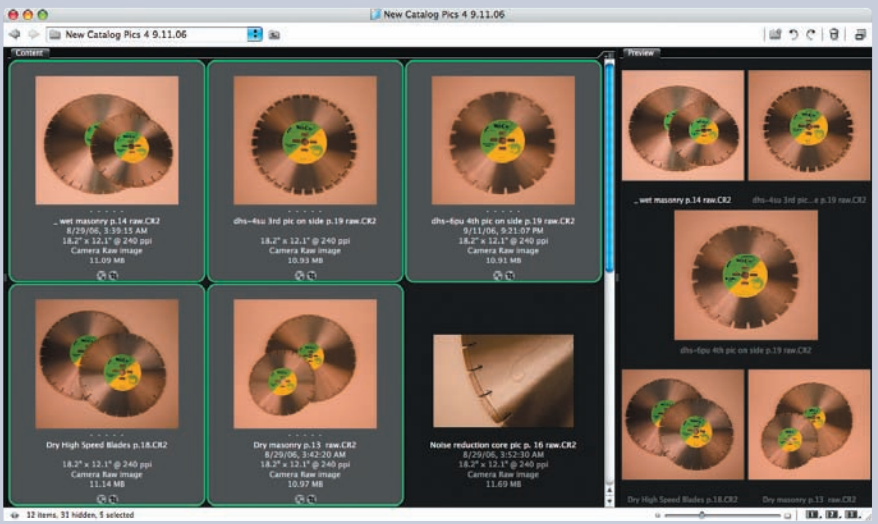
To apply presets (saved adjustment settings) to multiple selected images, Shift+click to select adjacent images in the vertical thumbnail list, or ⌘/Ctrl+click to select nonadjacent images. To select every open image in Camera Raw, click the Select All button. When you do, all of the thumbnails are highlighted. The thumbnail of the image that is currently displayed in the Preview window is outlined in blue. Click the preset name to apply saved settings to all of the selected images at once.

Real World Scenario

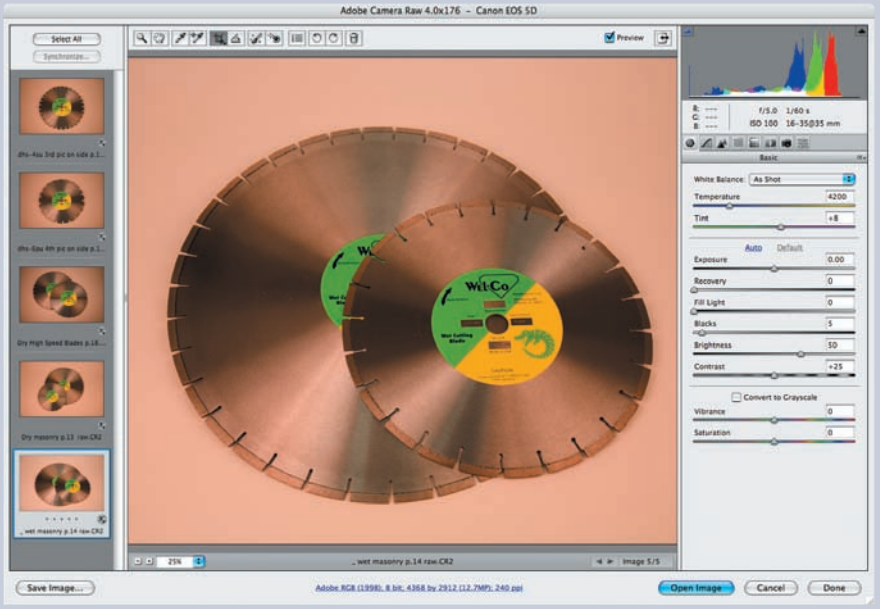
Synchronize Settings

Camera Raw also allows you to synchronize settings for multiple open images. When they are synchronized, adjustments made to one image are applied to all images in the selected group. This can be a huge time-saver when working with print images that contain similar characteristics, such as lighting, color, and contrast.

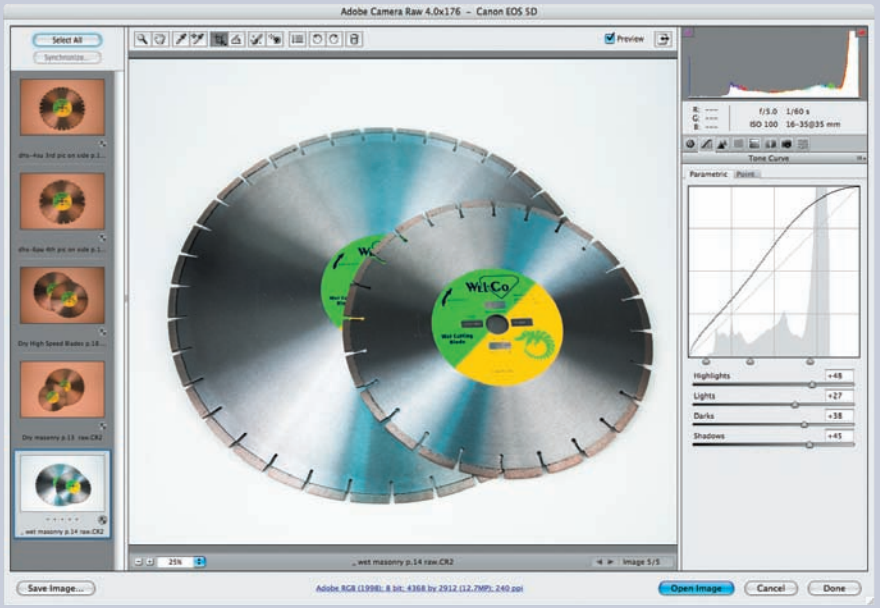
In this example, I used Camera Raw to synchronize settings for several RAW product shots that I was given to work with for a company catalog. For the most part, these industrial saw blade images are all very similar. A few are a bit darker than others, and a couple of them could use some extra sharpening, but they all contain the same colors and need to be adjusted. I decided to make these adjustments to all of them at once in order to save production time:



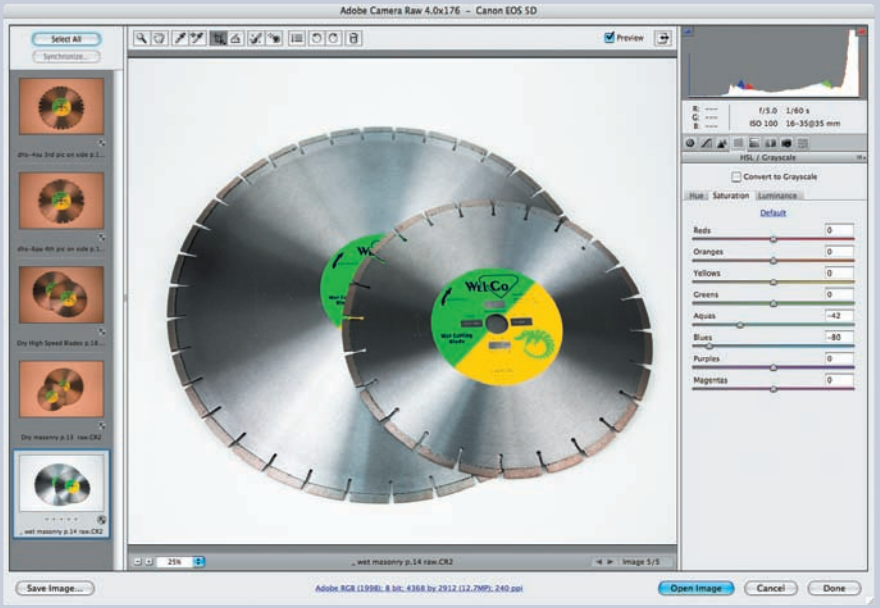
1. I opened all of the images in Camera Raw by selecting them in Bridge and double-clicking.



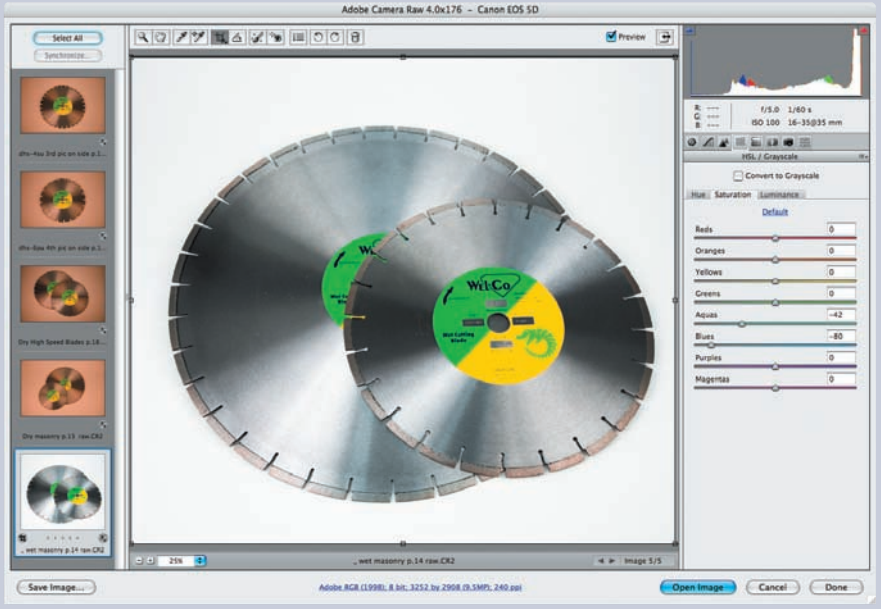
2. With one of the image thumbnails selected, I referred to the preview window and began to make my adjustments. I applied Auto White Balance and Auto Exposure adjustments to start, and then applied some tonal adjustments by using the Tone Curve Parametric tab. Doing so eliminated the brownish yellow color cast that was present.



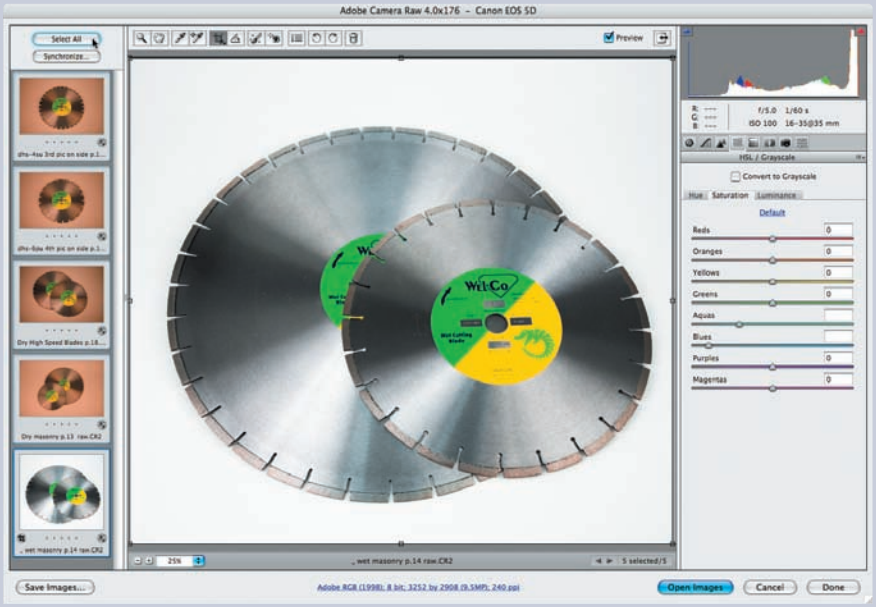
3. In the Saturation panel of the HSL/Grayscale tab, I lowered the saturation value for both Blues and Aquas in order to dull the blue color cast that was present in the metal of the blades.



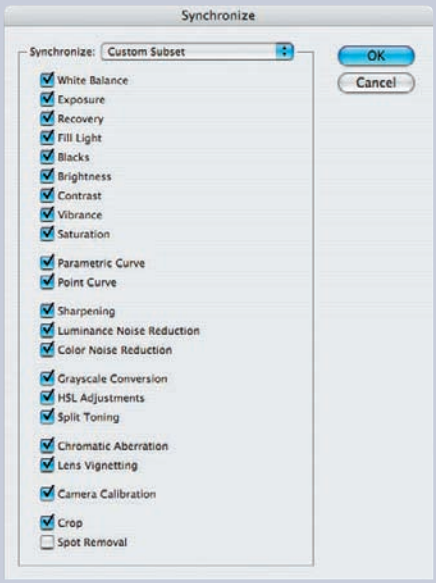
4. I cropped the image by using the Crop tool. As I did this, I referred to the thumbnails to make sure my crop was not too close to the image area in any of the product shots.



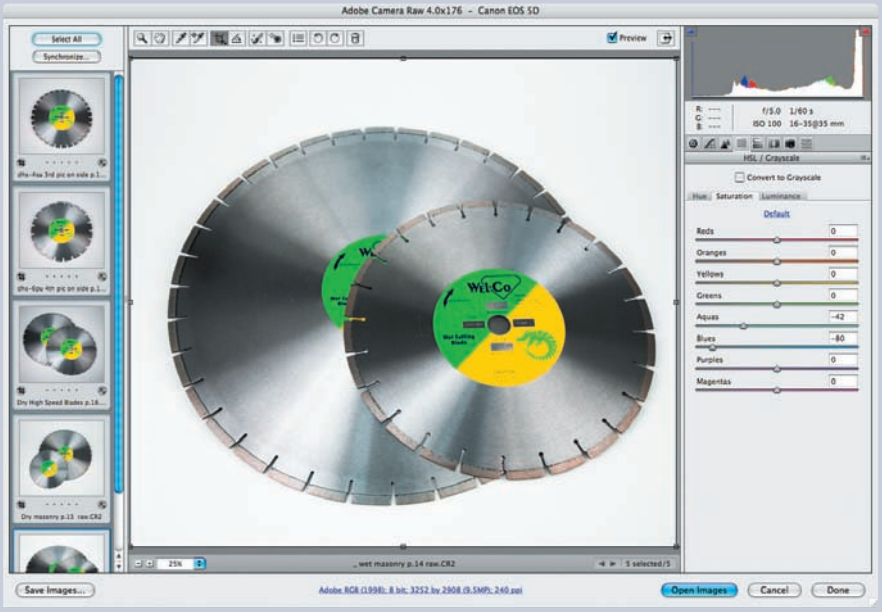
5. I selected all of the images in Camera Raw by clicking the Select All button (you must have more than one image thumbnail selected at a time in order to gain access to the Synchronize button).



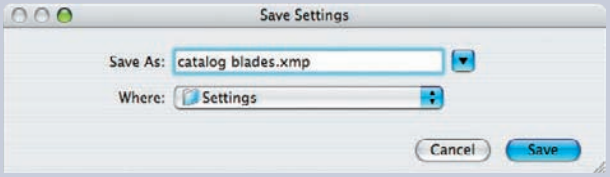
6. With all the images selected, I clicked Synchronize, which displays the Synchronize dialog box. Here is where you can tell Camera Raw what settings you'd like to synchronize (the dialog is exactly the same as the Save Settings dialog described earlier in "The Presets Tab" section of this chapter).



7. With all of the options enabled except for Spot Removal, I clicked OK. I could then see the adjustments applied to all of the image thumbnails. The thumbnails always update themselves whenever you click Synchronize.



8. I saved these settings as a preset for later use with additional catalog images as they arrived from the photographer (for more on saving presets, see "The Presets Tab" section earlier in this chapter). At this point, all major adjustments have been made across the board for this group of images. I can now spend time tweaking individual shots as needed, either in the Camera Raw dialog or by opening them in the Photoshop workspace.



9. Last, I clicked Open to bring the images into the Photoshop workspace and tweak them individually as needed. Here is where the final images were sharpened, converted to CMYK, and saved in a suitable file format for placement in a layout application.

The Bottom Line

Prepare RAW Images for Print RAW files are made up of unprocessed data just as it is captured by the camera's image sensor. Shooting in RAW format allows you to capture a wider range of colors and acquire much more accurate image detail, and editing them in Camera Raw is nondestructive. This means that no matter what adjustments you've made when using the plug-in, you can always revert to the original "as shot" settings at any time. This makes for an even wider safety net than working with adjustment layers in the Photoshop workspace.

> **Master It** Open a RAW image that Camera Raw can recognize, or convert the image to DNG format by using the Adobe DNG Converter application. Proceed to make adjustments in Camera Raw that will enhance the print quality of the image, such as tonal and color corrections, noise reduction, and sharpening.

Edit TIFFs and JPEGs with Camera Raw With CS3, you can now edit TIFFs and JPEGs in Camera Raw. This is a huge advantage to graphic designers as well as photographers, because it gives you access to the exposure controls and white balance settings that were previously applicable only to RAW files.

> **Master It** Open a TIFF or JPEG image in Camera Raw from Bridge or by using the File ➢ Open (Mac) or File ➢ Open As (Win) command.

Adjust Multiple Images with Synchronized Camera Raw Settings Camera Raw allows you to open multiple images in the dialog at a time and synchronize applied settings. When they are synchronized, adjustments made to one image are applied to all images in the group. This can be a huge time-saver when working with print images that contain similar characteristics, such as lighting, color, and contrast.

> **Master It** Open a group of similar images in Camera Raw by selecting them in Bridge and double-clicking, or by selecting them from the system folder and pressing ⌘/Ctrl+O. With images that are selected from Bridge or from the system folder, you can also choose Open With Adobe Photoshop CS3 from the contextual menu (Control+click—Mac, or right-click with a two-button mouse.

Chapter 11

CS3 Integration

Photoshop is an integral part of any print design/production workflow. However, to attain the utmost efficiency, I recommend utilizing the various ways that Photoshop can work together with the other applications in Adobe Creative Suite 3. The suite applications that are most commonly used for creating print graphics and layouts (besides Photoshop) are InDesign, Illustrator, Acrobat Professional, and Bridge. If you're using QuarkXPress (which is not part of the Creative Suite package)…well, let's just say that you're missing out on some pretty cool features. QuarkXPress is a great layout application that works well with Photoshop, but it doesn't offer you any of the suite integration features that InDesign does, such as the ability to place images directly from Bridge, or the ability to access and control layer visibility for placed PSD files. But even if you are using QuarkXPress, you can still take advantage of the file management features that are available in Bridge, as well as the tight integration between Photoshop and Illustrator.

In this chapter, you will learn to:

- Create and save a custom Bridge workspace
- Synchronize color settings through Bridge
- Access layer comps from InDesign and Illustrator
- Import and export paths between Photoshop and Illustrator

Utilizing Adobe Bridge

Adobe Bridge, which is automatically installed along with Photoshop and the Creative Suite, is a versatile file manager that truly serves as the gateway between CS3 applications. Bridge gives you the flexibility to organize all your project files however you choose. This includes all your images and graphics, saved in every kind of file format (bitmap and vector), as well as all your InDesign documents and snippets, and PDF proofs. Bridge allows you to preview, label, and categorize images and graphics, and even allows you to drag and drop them into InDesign and Illustrator. Bridge also gives you access to several automated scripts that can be used with the other applications in the suite, and gives you access to the powerful Version Cue server application that comes with CS3. You can even access the Camera Raw dialog box directly from Bridge.

Accessing Bridge

Bridge is a stand-alone application that can be opened directly from your operating system. It can also be accessed from within any of the open applications in the Creative Suite via the following methods:

- Choose File ➢ Browse.
- Press Option+⌘+O (Mac) or Alt+Ctrl+O (Windows).

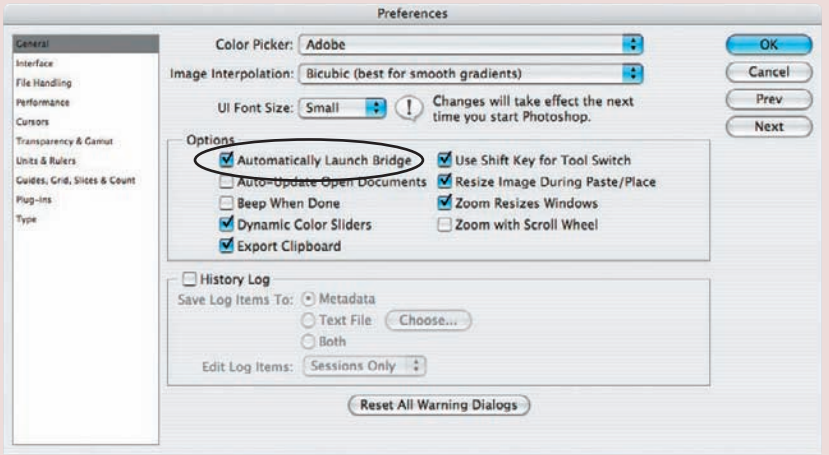
- Click the Go To Bridge button (see Figure 11.1). You can access the Go To Bridge button in any one of the following areas:
  - The Options palette in Photoshop
  - The Control palettes in InDesign and Illustrator
  - The toolbar in Acrobat Professional

FIGURE 11.1
Click the Go To Bridge button in any suite application to access Bridge.

In Photoshop, you also have the option to close the currently active image and go directly to Bridge. To do so, choose File ➢ Close And Go To Bridge.

AUTOMATICALLY LAUNCH BRIDGE

If you find yourself using Bridge often (as you very well should), you can save yourself a step by enabling the Automatically Launch Bridge preference located in the General panel of Photoshop's Preferences dialog box. Enabling this option automatically launches Bridge any time you start up Photoshop.



Understanding the Bridge Interface

In the default Full Mode view, the Bridge interface consists of one large window that contains several resizable panels (see Figure 11.2). Below the title bar at the top of the window is a control bar containing various tools and buttons.

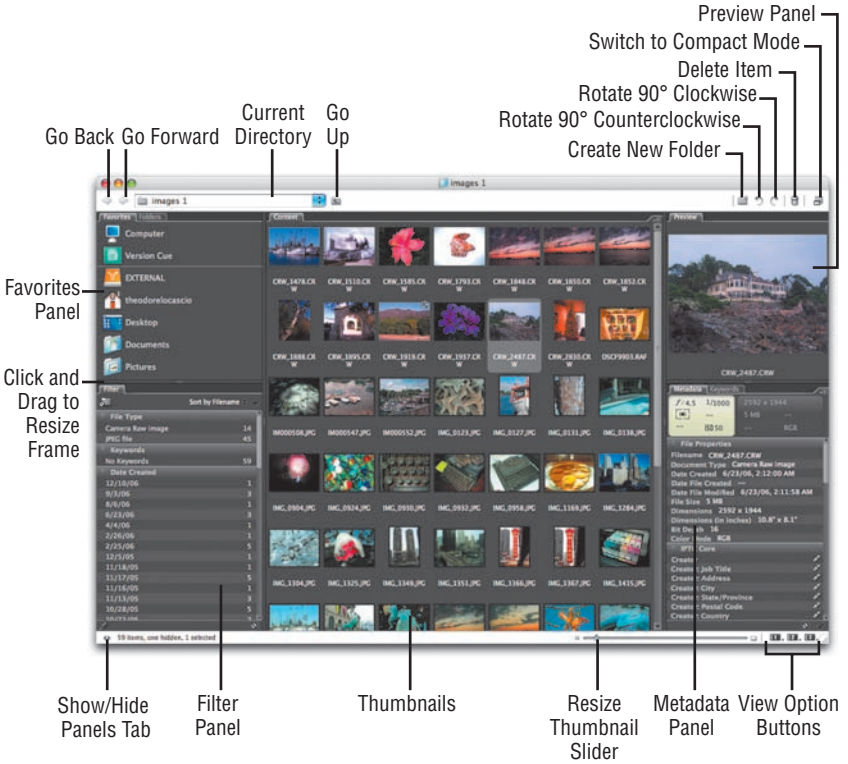


FIGURE 11.2
The Bridge interface in the Default workspace

The main window is divided into sections, the number of which is determined by how many panels you've currently chosen to display and where you've chosen to position them. You can hide or show as many panels as you like, and you can also open more than one window at a time.

Clicking and dragging the divider bars that are positioned between the panels resizes them. Note also that the window itself can be resized by clicking and dragging the tab in the bottom-right corner.

You can also show or hide all the panels surrounding the one that is currently positioned in the center of the window, by clicking the Show/Hide Panels tab located at the bottom left (see Figure 11.3). This can be a quick and easy way to focus solely on image thumbnails when trying to decide which images to work with for a print layout. It can also be a great way to increase the size of a single image preview when inspecting with the Loupe tool (see "Organizing and Inspecting Images" later in this chapter).

Choosing Bridge Workspace Options

Just as Photoshop contains workspace options that allow you to save your favorite onscreen palette arrangements, Bridge also allows you to save your favorite panel arrangements. The interface is totally customizable, allowing you to move, resize, hide, or show any of the panels in a window. I'll explain how to do this in the next section, but first, let's take a look at the built-in workspaces that come installed with Bridge. It's much easier and less time-consuming to identify a built-in workspace that comes close to your idea of the perfect work environment and then customize it to suit your needs.

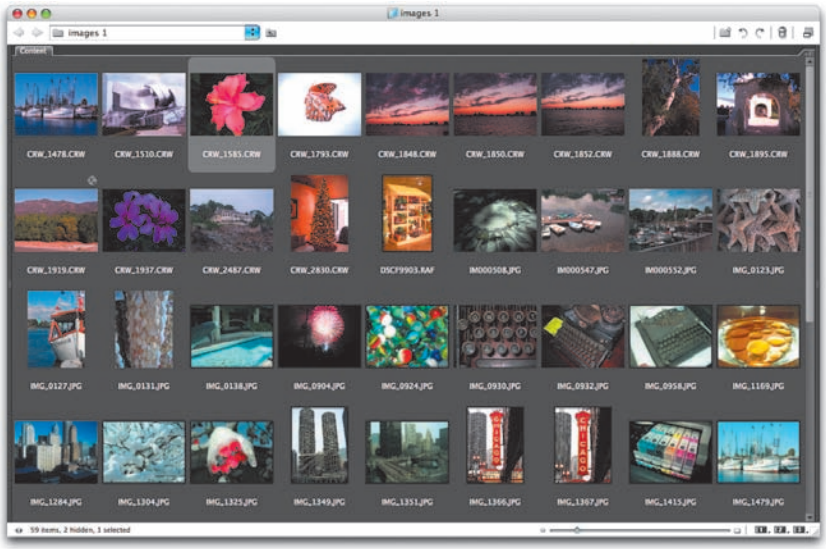


FIGURE 11.3
Hiding the panels surrounding the centrally located Content panel

There are two ways you can choose and apply a workspace in Bridge:

- Select one from the Window ➢ Workspace submenu.
- Click any one of the buttons labeled 1, 2, or 3 in the bottom-right corner of the Bridge window.

Clicking a workspace button applies the workspace that is currently assigned to it. You can change the workspace that is currently assigned by clicking and holding down the button and choosing a different workspace from the pop-up menu list. The workspace you choose remains assigned to the button until you decide to change it.

I recommend that you try each one of these built-in workspace options for yourself and assign the three that are most helpful to you. I personally like the Default, Light Table, and Vertical Filmstrip workspaces. Note that you can also assign a custom workspace to any one of the buttons.

Default The Default workspace gives you access to every panel in Bridge, which can come in handy when you need to know the specifics of an image (accessible through the Metadata panel), or when you're trying to locate a certain project file with the Filter and Folders panels (Figure 11.4).

Light Table The Light Table workspace focuses solely on the thumbnails in the Content panel, which is a great way to locate and flag images that you may want to use in a layout (Figure 11.5). You can use the navigation menu in the control bar above to access the images you'd like to preview.

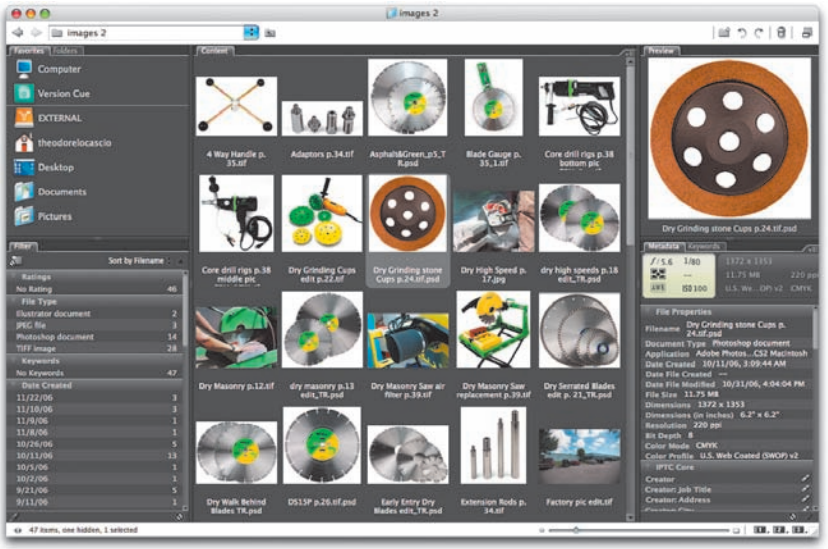


FIGURE 11.4
The Default workspace gives you access to every panel in Bridge

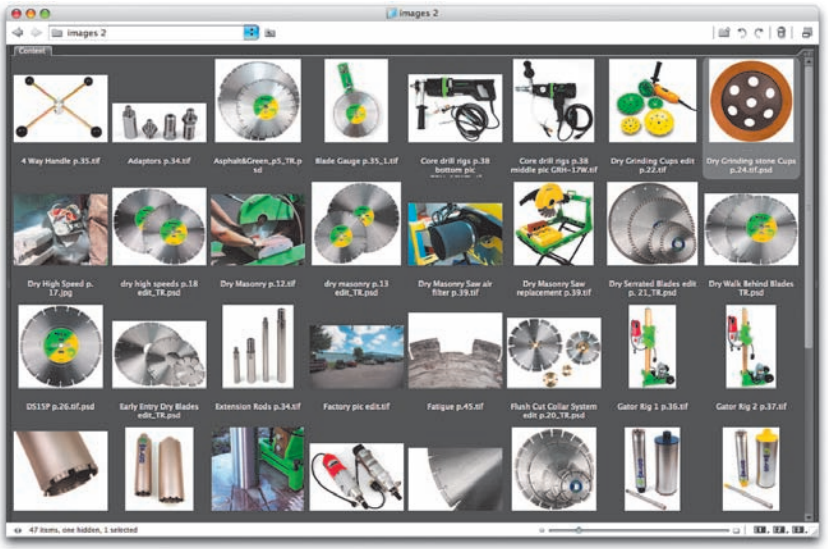


FIGURE 11.5
The Light Table workspace focuses solely on thumbnails in the Content Panel

File Navigator The File Navigator is similar to the Light Table workspace in that the Content panel takes up the most room in the Bridge window (Figure 11.6). The Favorites and Folders panels are also displayed, which makes it easy for you to quickly navigate to the images that you'd like to work with. However, I prefer the Light Table workspace, simply because it allows more room for previewing. I see no reason to take up extra space in the window by displaying the Favorites and Folders panels, especially when you can just as easily access the images you'd like to preview by using the navigation menu in the control bar above.

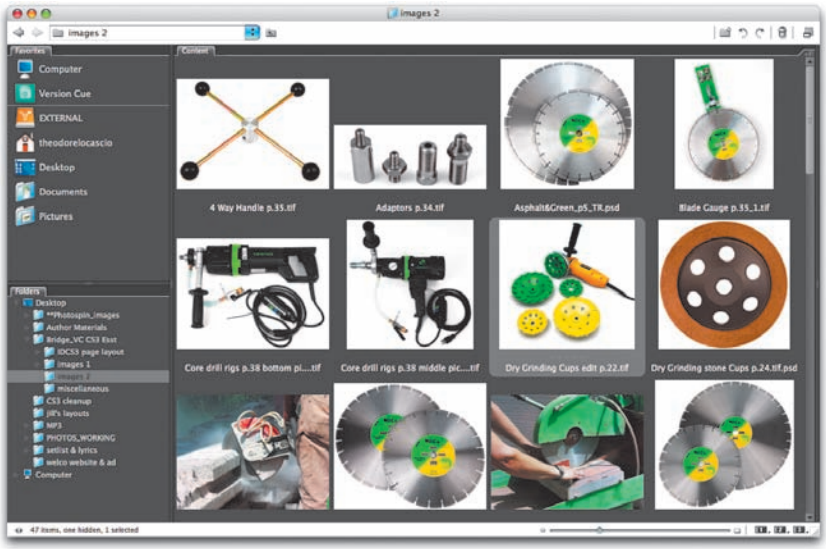


FIGURE 11.6
The File Navigator is similar to the Light Table workspace, but also displays the Favorites and Folders panels

Metadata Focus Metadata Focus is structured similarly to File Navigator in that the Content panel takes up the most room in the Bridge window (Figure 11.7). The difference is that Metadata Focus displays basic information about each image to the right of the thumbnails, which forces them to be displayed in a single column. This leaves an awful lot of wasted space on the right side of the window that could be used for previewing. Also, displaying the metadata next to the images limits how large you can resize the thumbnails. I would recommend using Metadata Focus only when you need to access more specifics about an image than are already available in the tool tip, such as bit depth, or dimensions in inches. To save room on your screen, I would also recommend decreasing the size of the window when using this workspace.

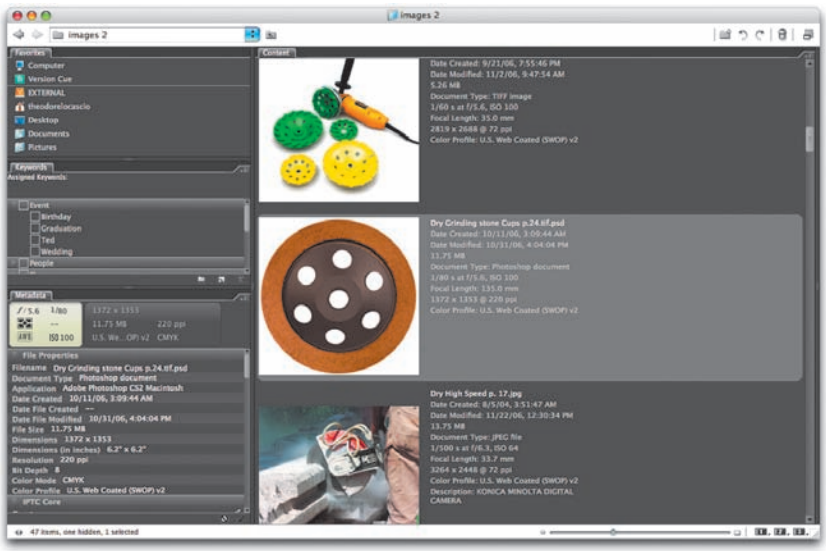


FIGURE 11.7
Metadata Focus is similar to File Navigator, but also displays basic information about each image

What Is Metadata?

The term *metadata* refers to the information that is stored in every digitally captured image. All Adobe applications use the XMP standard (eXtensible Metadata Platform) for storing and exchanging metadata. In addition to basic file properties such as file size and pixel dimensions, various other types of metadata can be displayed in Bridge's Metadata panel. Some of the more useful metadata types are as follows:

EXIF (Exchangeable Image File Format) contains information about how the image was captured, such as the camera model, shutter speed, focal length, flash setting, and date and time.

IPTC (International Press Telecommunications Council) stores information about the photographer as well as copyright notices.

GPS (Global Positioning System) stores information about where the image was shot.

Camera Raw settings use metadata to instruct Photoshop how you'd like the image processed after it is opened (see Chapter 10, "Editing in Camera Raw").

Horizontal Filmstrip Horizontal Filmstrip creates a type of slideshow arrangement in Bridge by placing a large Preview panel directly above a horizontal row of thumbnails in the Content panel (Figure 11.8). The large preview is useful for inspecting image sharpening with the Loupe tool (see the "Loupe Tool Inspection" section later in this chapter) and for comparing selected thumbnails side by side. However, for an even larger preview area, I recommend using the Vertical Filmstrip workspace.

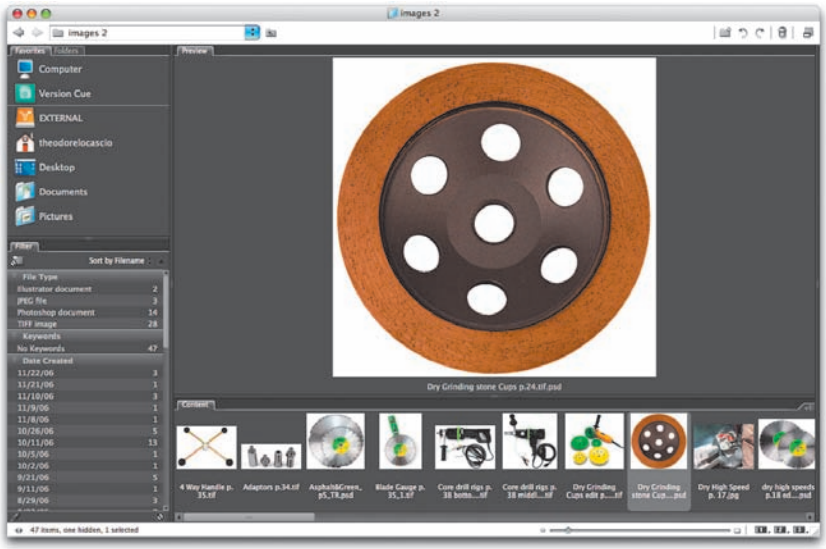
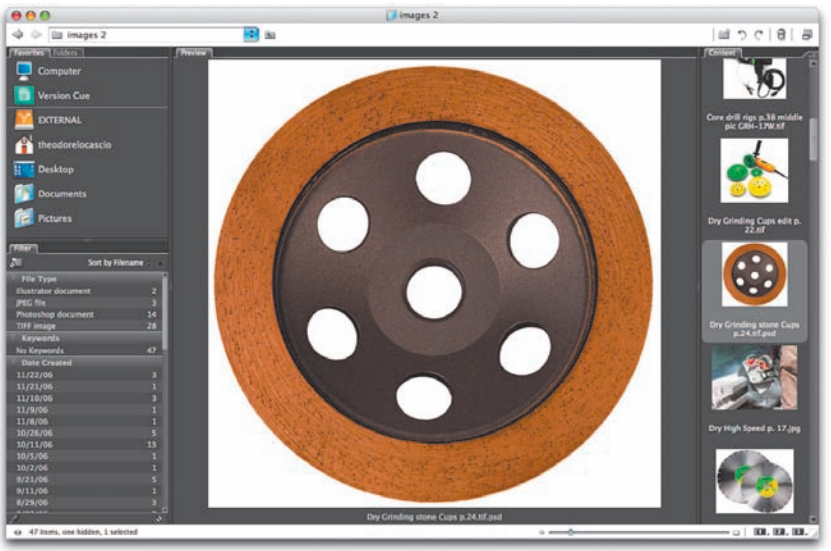


FIGURE 11.8
The Horizontal Filmstrip

Vertical Filmstrip Vertical Filmstrip contains the largest preview area, which makes it a great workspace for inspecting images and for comparing selected thumbnails side by side (Figure 11.9). As in the Horizontal Filmstrip, the Favorites and Folders panels are grouped together. This allows more room to work with the new Filter panel, which can be used to access specific images in a folder based on certain characteristics such as document type, resolution, or color profile.

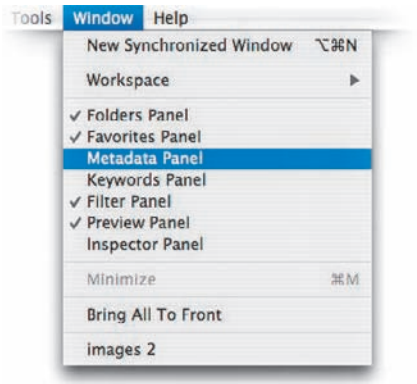
FIGURE 11.9
The Vertical Filmstrip



CUSTOMIZING A WORKSPACE IN BRIDGE

The Bridge interface is easy to customize. The only items that can't be moved, resized, or hidden are the tools and the title bar at the top of the window. You can hide or show the different panels by selecting them under the Window menu (see Figure 11.10).

FIGURE 11.10
Bridge displays a check mark next to the panel name in the menu to indicate when a panel is currently visible.



To reposition panels in the window, click the tab containing a panel's name, and then hold down the mouse button and drag the tab to a new location. Release the mouse button when either a thick blue line or a thick blue box appears. A blue line indicates that letting up on the mouse button will place the panel between two other panels; a blue box indicates that letting up on the mouse button will group it with the panel that is currently positioned underneath the cursor (see Figure 11.11).

When setting up a Bridge work environment for print design and production, I usually start by applying the built-in Vertical Filmstrip workspace and then make a few modifications to it. The first thing I do is condense the size of the Content panel by reducing the size of the thumbnails. This can be done by moving the scroll bar at the bottom of the window to the left. I then drag the divider bar to the right, allowing more room for the Preview panel in the center of the window. I also hide the filenames displayed under the thumbnails by choosing View ➢ Show Thumbnail Only (⌘/Ctrl+T). To the left of the Preview panel, I always keep three panels stacked vertically: the Favorites and Folders group on top, the Metadata panel in the center, and the Filter panel on the bottom. With this arrangement, all the tools that I need to sort, navigate, and access file info are located in one compact section of the window (see Figure 11.12).

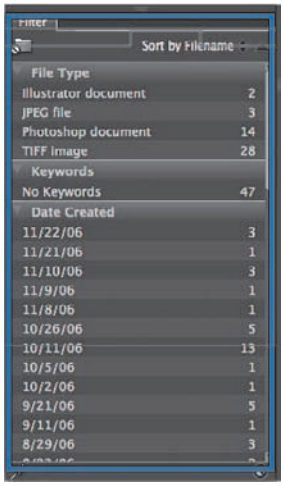


FIGURE 11.11
When a blue box appears, release the mouse button to group the panel that you are moving with the panel that is currently positioned underneath the cursor.

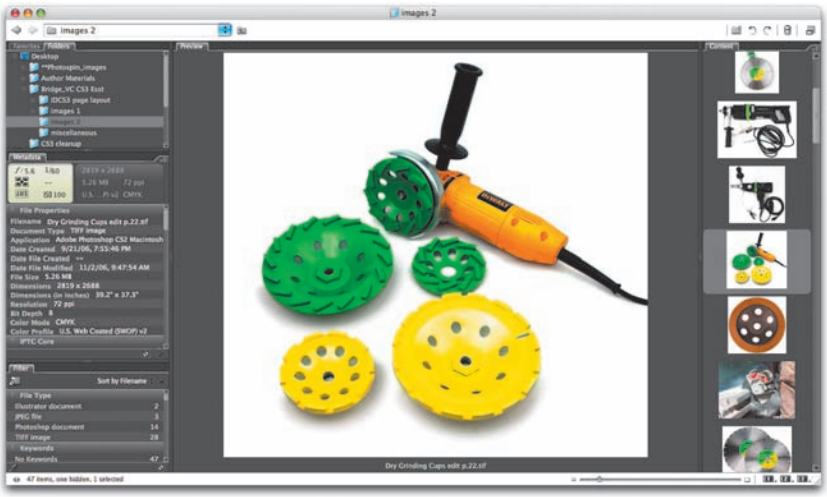
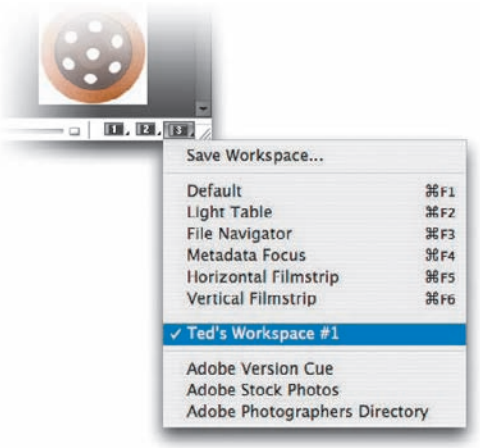


FIGURE 11.12
An example of a customized Bridge workspace for print design and production work

Saving and Deleting Workspaces

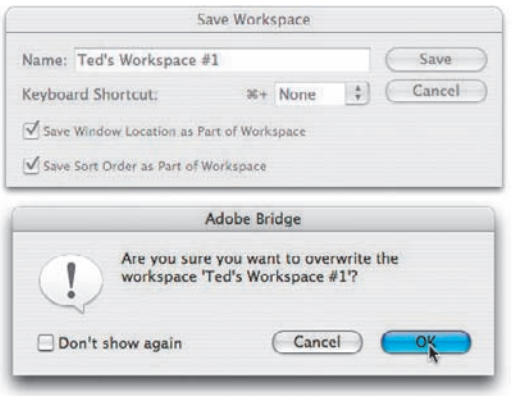
To save your preferred panel arrangement, choose Window ➢ Workspace ➢ Save Workspace. When the Save Workspace dialog box appears, enter a name for your workspace and click OK. You can now restore your workspace whenever you like by selecting it under the Window ➢ Workspace submenu (Figure 11.13). You can also select it from any of the workspace pop-up lists that appear when clicking the 1, 2, or 3 button in the bottom-right corner of the window. Using this method to apply your workspace assigns it to the button until you decide to change it.

Figure 11.13
Restore your saved workspace from the Workspace submenu.



To save changes made to your custom panel arrangement, choose Window ➢ Workspace ➢ Save Workspace, and enter the name of the workspace you want to update. Click OK when the dialog box asks whether you want to replace the workspace (Figure 11.14).

Figure 11.14
Click OK to save changes to your custom panel arrangement.



You can always delete a saved workspace by choosing Window ➢ Workspace ➢ Delete Workspace. When the Delete Workspace dialog box appears, select the workspace you want to delete from the list (you can delete only one at a time) and click Delete.

Using Bridge Screen Modes

Bridge contains three screen modes that allow you to change the size of the window and the content that is displayed in it. By implementing these modes into your workflow, you can utilize Bridge's file navigation abilities without compromising any of your precious screen real estate.

Full Mode The default setting for Bridge is Full mode, which allows you to display any or all of the available Bridge panels within the window. Full mode is fully customizable and allows you to save and display workspaces. When using Bridge in one of the other modes, you can switch back to Full mode by clicking the Switch To Full Mode button in the upper-right corner of the window. When in Compact mode, you can return to Full mode by choosing View ➢ Full Mode, or by pressing ⌘+Return (Mac) or Ctrl+Enter (Windows).

Compact Mode Compact mode reduces the size of the window and limits the display to the Content panel only, giving you access to just the thumbnails. This mode can be extremely helpful when using Bridge to place files into InDesign or Illustrator, because it allows you to position the compact window directly next to the layout document as you drag and drop (see Figure 11.15). The quickest way to switch to Compact mode is to click the Switch To Compact Mode button in the upper-right corner of the window, but you can also choose View ➢ Compact Mode, or press ⌘+Return (Mac) or Ctrl+Enter (Windows).

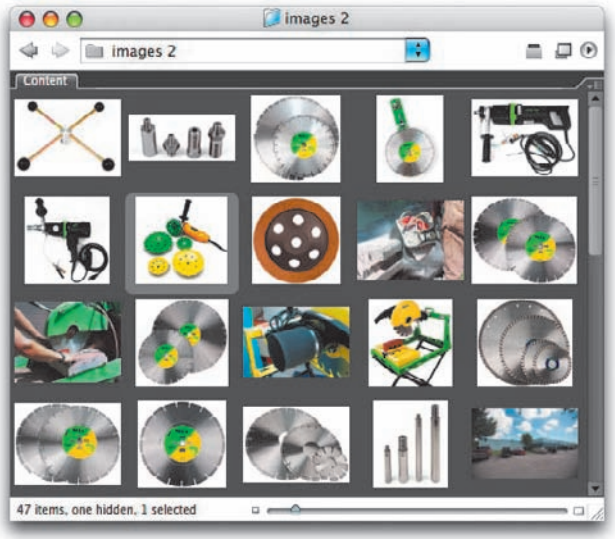


FIGURE 11.15 Compact mode makes dragging and dropping files into InDesign documents much easier.

A disadvantage to working in Compact mode is that it does not allow you access to any of the file information in the Metadata panel. However, if you need to access information such as file size, image dimensions, or resolution, you can do so by keeping tool tips enabled in the Bridge Thumbnails Preferences dialog box (they are on by default and are accessible by pressing ⌘/Ctrl+K) and hovering over the thumbnail with the cursor (see Figure 11.16).

The Bridge Thumbnails preferences also allow you to display additional lines of metadata under the thumbnails in the Content panel (see Figure 11.17). By enabling this preference, you can eliminate the need for tool tips.

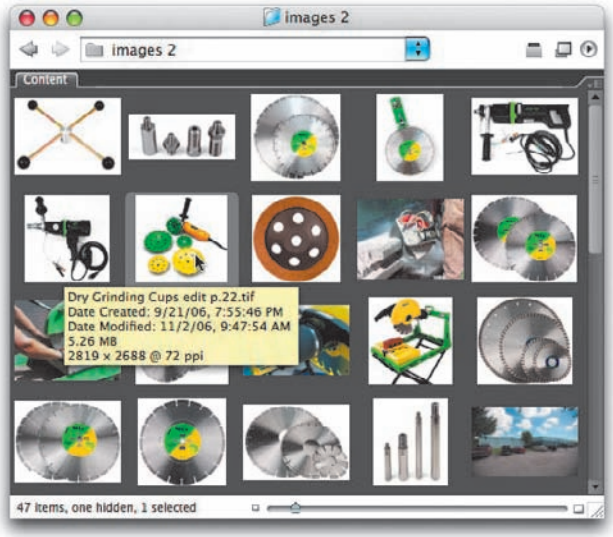


FIGURE 11.16
When in Compact mode, you can use tool tips to access image information such as file size, pixel dimensions, or resolution.

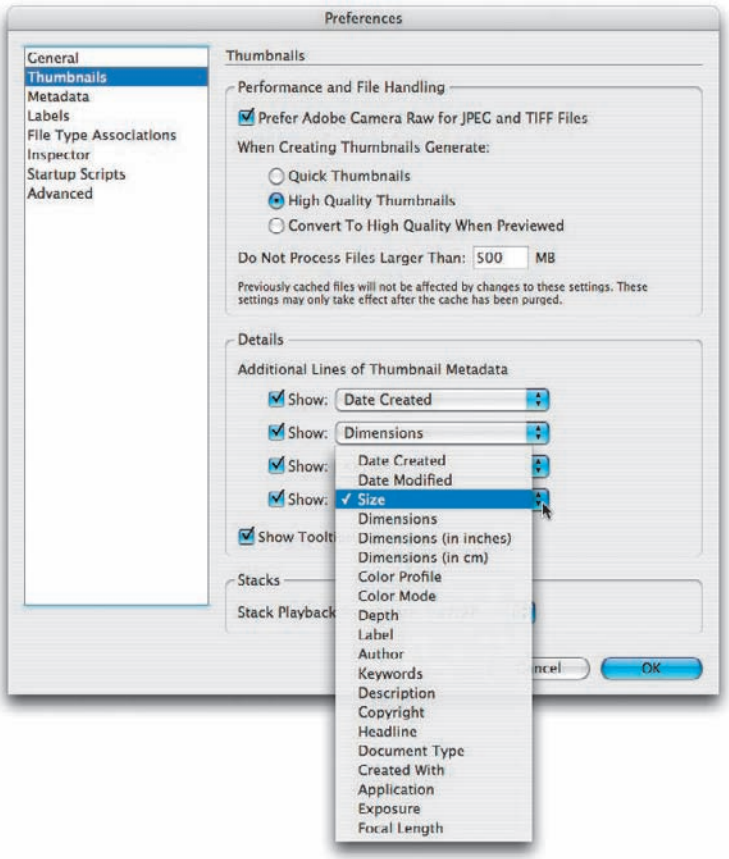


FIGURE 11.17
Bridge's Thumbnails preferences allow you to choose what information you'd like displayed. You can select from the options available in the pop-up lists provided.

I recommend displaying metadata under the thumbnail rather than using tool tips, simply because tooltips can potentially cover up thumbnails that are reduced to a smaller size. Another benefit to using this preference over tool tips is that it allows you to tell Bridge exactly what information you'd like displayed—something you cannot do with tool tips (see Figure 11.18).

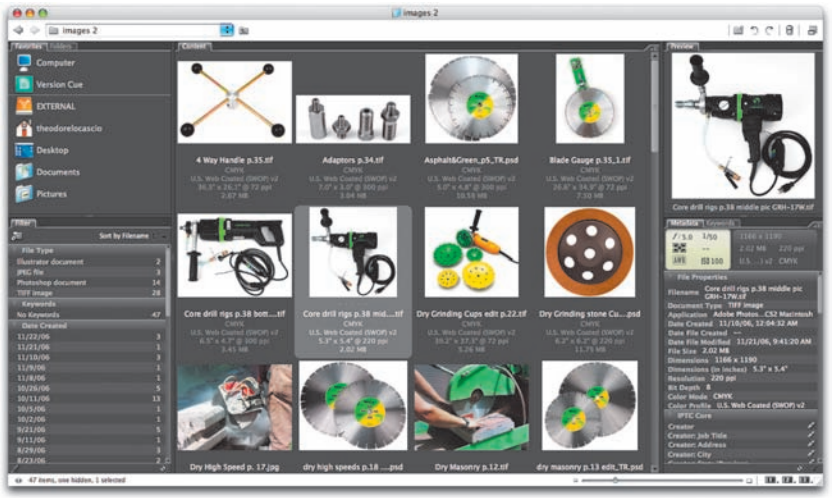


FIGURE 11.18
Displaying metadata under the thumbnail is a nice alternative to using tool tips.

Ultra Compact Mode Switching to Ultra Compact mode hides everything except the title bar and controls (see Figure 11.19). The only reason to ever switch to this mode is to temporarily collapse the Compact Mode window and create more room onscreen for other applications. To switch to Ultra Compact mode, click the Switch To Ultra-Compact Mode button in the upper-right corner of the window. Note that you can switch to Ultra Compact mode only when you are currently working in Compact mode—*not* when you are working in Full mode. To return to either Compact or Full mode, click the Switch To Compact Mode button or the Switch To Full Mode button.

FIGURE 11.19
Ultra Compact mode hides everything except the title bar and controls.

Organizing and Inspecting Images

Besides using Bridge to locate and preview your images, you can also use it to help keep your projects organized. Bridge allows you to categorize, label, rank, sort, move, and even delete files from your hard disk.

File Navigation

There are several ways to navigate through your hard disk by using Bridge. But before you start navigating, be sure to keep the Edit ➢ Show Folders option enabled. This allows you to view folders in the Content panel thumbnail display. You can display the contents of a folder by double-clicking its icon in the thumbnail list.

Navigation Menu and Go Back/Go Forward/Go Up Buttons The navigation tools can be accessed in the Bridge controls, located in the upper-left corner of the window (Figure 11.20). They are most useful when the Folder and Favorites panels are hidden. To access a specific menu, click anywhere in the menu area and select a folder from the drop-down list. The drop-down list contains the same locations as the Favorites panel, and also includes a recent folders section—something the Favorites and Folders panels *do not* have. You can click the Go Back/Go Forward buttons to redisplay the contents of any folders that you've previously selected. The Go Up button will take you up one directory in the folder hierarchy.

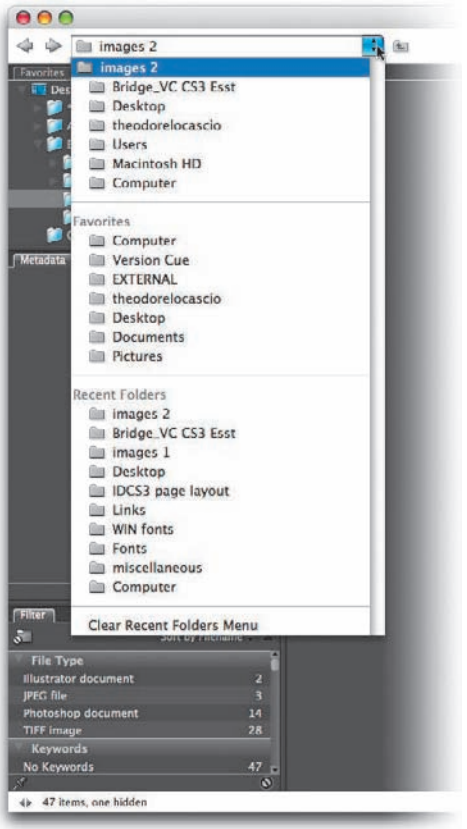


FIGURE 11.20
The Navigation Tools can be accessed in the Bridge controls.

Folders Panel The Folders panel displays the volume and folder hierarchy, just as when working with an operating system window in List view (Figure 11.21). Click the arrows to the left of the folder names to toggle the display of subfolders in the list. You can scroll through the folder list by using the up and down arrow keys, and expand or collapse folders by using the left and right arrow keys. Pressing ⌘/Ctrl+up arrow is the same as clicking the Go Up button in the Bridge controls.

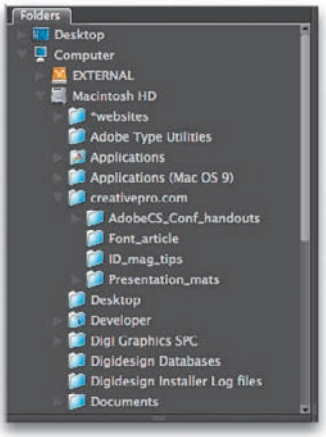


FIGURE 11.21
The Folders Panel displays the volume and folder hierarchy

Favorites Panel The Favorites panel can be used to store frequently visited volumes, folders, and collections (saved search criteria) for quick and easy access to your project files. Bridge's General Preferences allow you to decide which default locations to display in the Favorites list.

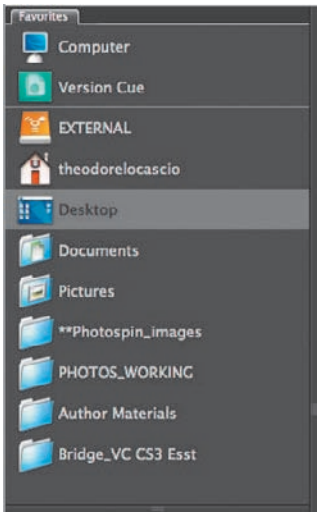


FIGURE 11.22
The Favorites Panel can be used to store frequently visited volumes, folders, and collections.

To save a folder or volume (such as an external hard disk) as a favorite, select its thumbnail icon from the Content panel and drag it into the Favorites panel list. You can also select a folder from the Content or Folders panel and choose Add To Favorites from the File menu.

To save a collection, choose Edit ➢ Find (⌘/Ctrl+F) and enter your search criteria in the Find dialog box. Click the Save As Collection button (Figure 11.23), and in the Save Collection dialog box that appears, choose a Save As destination for the virtual folder (Figure 11.24). Enable the Add To Favorites option and click Save. Bridge adds the collection icon to the Favorites panel list. In print design, collections can be useful when created based on client, job number, or file type.

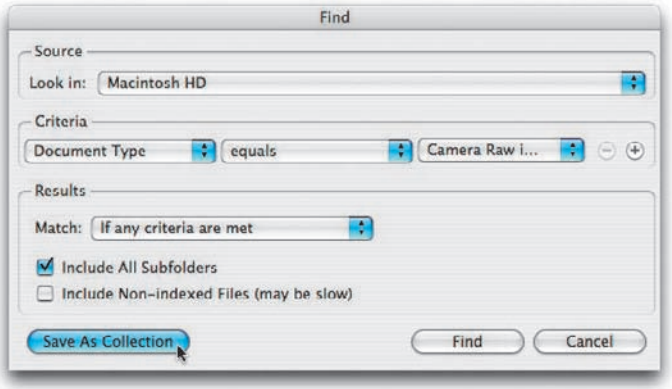


FIGURE 11.23
Click the Save As Collection button in the Find dialog box to begin saving a collection.

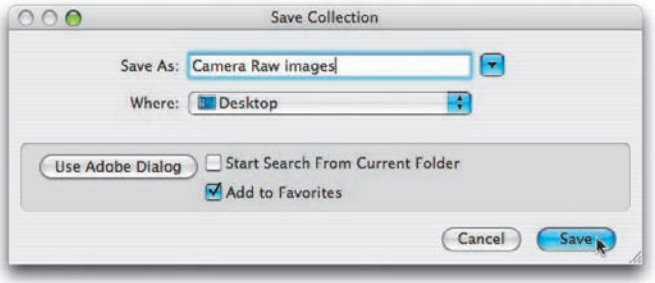


FIGURE 11.24
Choose a Save As destination in the Save Collection dialog box to finish saving a collection.

KEYWORDS, RATINGS, AND LABELS

Bridge allows you to assign keywords, ratings, and labels to your images, making them much easier to locate when using the Filter panel or Find dialog box.

Keywords Panel The Keywords panel allows you to add keywords associated with the selected image. Any keyword that you assign is added to the image's metadata. This means that you can locate and display images by their assigned keywords.

Keywords are contained within keyword sets. The default sets displayed in the Keywords panel are the Event, People, Place, and Other Keywords sets. You can click the arrows to the left

of the keyword set names to toggle the display of keywords in the set. To add a keyword to an existing set, select it and click the New Keyword icon at the bottom of the panel. Proceed to type the keyword that you'd like to assign to the image in the highlighted field, and then click Return/Enter.

To create a new keyword set, click the New Keyword Set icon at the bottom of the panel and enter a name for it in the highlighted field. Press Return/Enter to add it to the alphabetical list.

You can add as many keywords as you like. The more you add, the easier it is to locate specific images when searching by keyword. When assigning keywords, I usually try to include at least one general term and one specific term. See Figure 11.25.

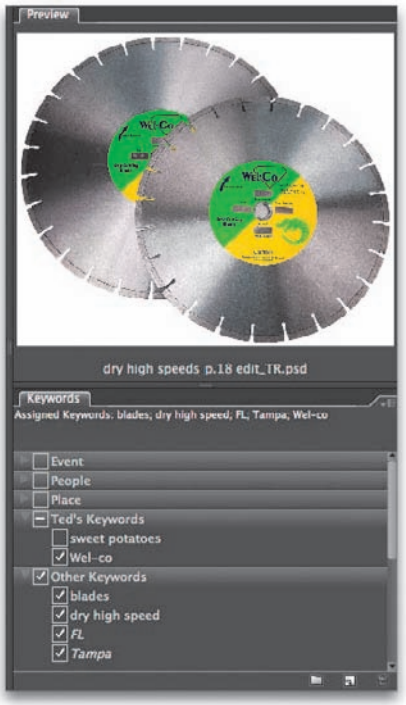


FIGURE 11.25
The Keywords panel allows you to add keywords associated with the image

Ratings and Labels Although ratings and labels sound similar, they are actually separate features in Bridge. Ratings are used to assign a one- through five-star ranking to an image, whereas labels are used to assign a color that is displayed underneath the image's thumbnail.

Assigning ratings can be a helpful way to flag images that you intend to use in a print layout. Back in the days before digital photography, I used to mark images that I thought had potential on a contact sheet with permanent marker. I would usually place a little *X* somewhere in the image thumbnail to indicate that it might be a good candidate for my layout. Back then I would *maybe* use different-colored markers to specify which images were more useful than others, but I certainly didn't institute a five-star rating system.

Let's face it—rating and labeling images with markers and contact sheets used to take up an awful lot of time. But nowadays, with the advent of digital photography and Bridge, you can assign ratings and labels quicker than ever before, and keep your images more organized than you ever thought possible (see Figure 11.26).

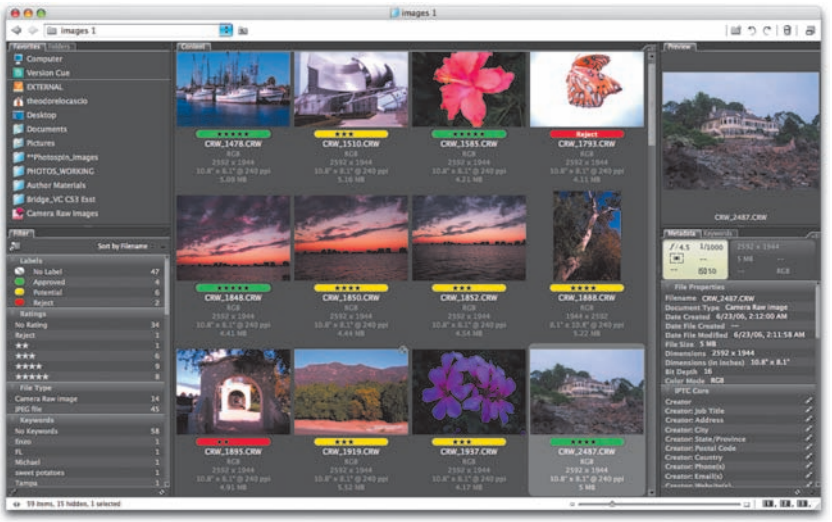


FIGURE 11.26
Bridge allows you to assign ratings and labels quickly and easily.

The quickest way to apply ratings is to select the thumbnails for a group of images that you consider to be of equal rank, and then apply the keyboard shortcut for that rating. If you prefer, you can assign a rating by selecting it from the Label menu (Figure 11.27), but I find applying shortcuts to be much faster.

FIGURE 11.27
Assign a rating using the Label menu instead of keyboard shortcuts if you prefer.

Color labels can be assigned with shortcuts as well, or you can select the color from the Label menu or from the pop-up menu (Figure 11.28). What these labels indicate is entirely up to you. In fact, you can even change the names of the color labels to reflect what they mean. You can do so in the Bridge Labels Preferences panel by typing in something different, such as *approved*, *reject*, or *potential*, in the field next to the color. The new name is displayed in the Filter panel and can be used to sort your images in a more meaningful way.

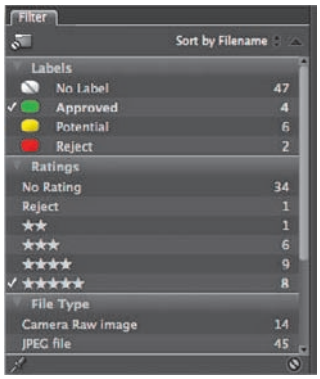


FIGURE 11.28
Color labels can be assigned from the Label menu instead of with keyboard shortcuts if you prefer.

FILTER PANEL AND SORTING

The new Filter panel in Bridge can be used to display specific thumbnails and sort them in various ways. The criteria that is chosen in the Filter panel determines what thumbnails are displayed in the Content panel and in what order they are sorted.

By default the Filter panel sorts images alphabetically by filename in ascending order. To change the default, click the words Sort By Filename at the top of the Filter panel and choose a different option from the drop-down menu, or choose a different option from the View ➢ Sort ➢ submenu (Figure 11.29). By clicking the arrow icon to the right of the Sort By control, you can toggle between ascending and descending order. An up arrow indicates that the thumbnails are currently being displayed in ascending order; a down arrow indicates that they are being displayed in descending order.

In addition to the Sort By list, the Filter panel also contains a series of what I refer to as *criteria sets*, such as File Type, Labels, Ratings, Keywords, and various other metadata info that you can use to filter images. By clicking the arrows to the left of the criteria sets, you can toggle the display of available metadata information for the images in the currently selected folder. For example, by clicking the arrow next to the File Type menu, Bridge displays a list of every file type currently available in that folder.

To filter the thumbnail list down to images containing specific characteristics, click any of the items displayed in any of the criteria sets. Bridge then places a check mark next to the items you clicked and removes any thumbnails from the Content panel that do not match the selected criteria. See Figure 11.30.

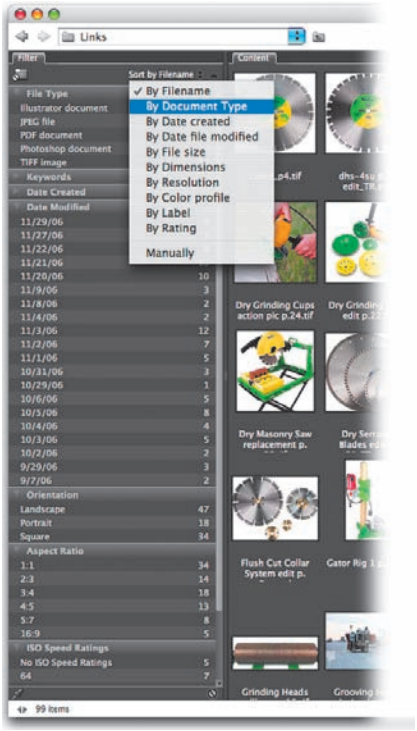


FIGURE 11.29
Choose a different filter sort option from the drop-down menu to sort thumbnails in various ways.

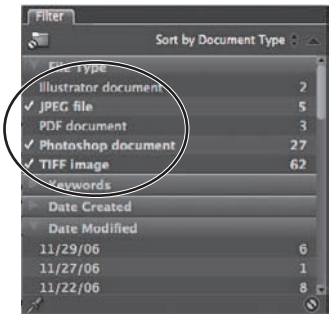


FIGURE 11.30
Click any of the items in the criteria sets to filter the thumbnail list down to images containing those specific characteristics.

To restore removed images to the thumbnail list, click the checked items again, or click the Clear Filter icon in the bottom-right corner of the Filter panel. You can also apply the keyboard shortcut for the Clear Filter command by pressing ⌘+Opt+A (Mac) or Ctrl+Alt+A (Windows). You can also keep Filter panel options enabled as you navigate to a different folder. To do so, click the Keep Filter When Browsing button in the bottom-left corner of the Filter panel before navigating to another folder.

Bridge also allows you to display all items in a selected folder, including all subfolder contents. To do so, click the folder icon in the upper-left corner of the Filter panel (Figure 11.31). To return to viewing just the items in the currently selected folder, click the icon again.

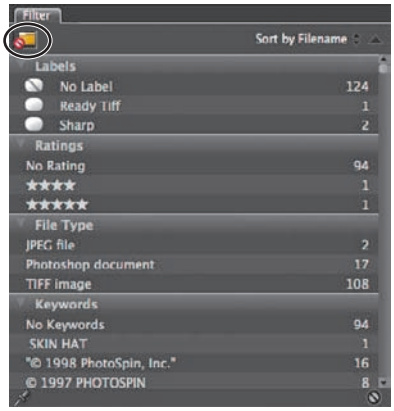


FIGURE 11.31
Click on the folder icon in the upper-left corner of the Filter panel to display all items in a selected folder.

LOUPE TOOL INSPECTION

The Loupe tool allows you to magnify a specific area of an image just as you would with a traditional loupe. To use the Loupe tool, you must have the Preview panel displayed in the Bridge window. Select a thumbnail and hover the cursor over the image preview. When you see the cursor change to display a magnifying glass (much like the Zoom tool in Photoshop), click to access the Loupe tool. The image area positioned directly underneath the top-left corner of the Loupe is what is magnified (see Figure 11. 32).

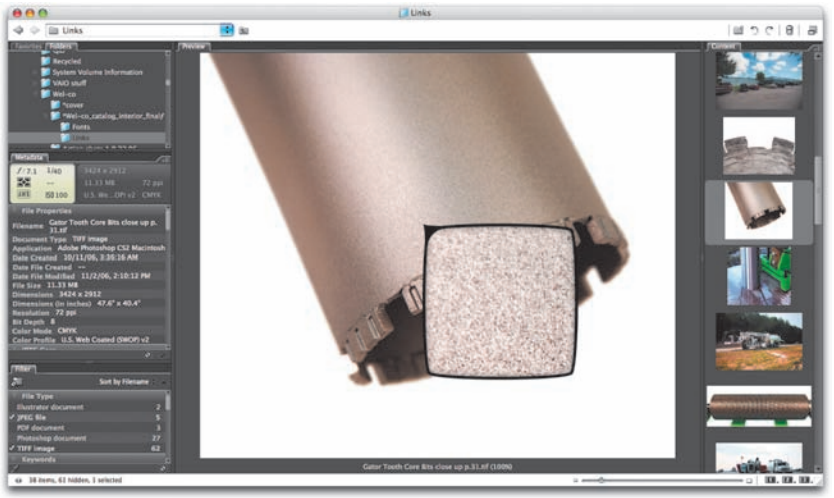


FIGURE 11.32
Hover the cursor over the image preview and click to access the Loupe tool.

You can move the Loupe tool by clicking and dragging it anywhere in the Preview panel. Alternatively, you can also click once anywhere in the image preview and the Loupe will jump to your current cursor location. To hide the Loupe, click once on its icon.

I find the Loupe tool useful for determining whether an image is sharp enough for print output (see Chapter 9, "Reducing Noise and Sharpening"). Being able to inspect images for correct sharpness without having to open them in Photoshop can be a huge time-saver. You can change the magnification percentage for the Loupe by pressing the + or – keys, or by using the scroll wheel of a mouse.

Image Stacks

Bridge now allows you to conserve room in the Content panel by grouping images together into *stacks*. The idea here is to select multiple images that are generally similar in content, and stack them on top of each other. Obviously, doing so means that you can display only the topmost image from the group in the thumbnail list, and that is why it makes the most sense to create image stacks out of similar photos.

For example, let's say you're designing a catalog. Generally, the photographer that you work with will provide you with more than one shot for every product in the catalog—some of them shot at different angles, different shutter speeds, or under different lighting conditions. Now, rather than letting your wrist cramp up as you scroll endlessly through the product thumbnails in Bridge, you can select the ones that are similar in content and group them into an image stack. Doing so helps conserve room in the Content panel and results in a lot less scrolling. By default, the topmost selected image from the sorted list is placed on top of the image stack. However, you can swap out the topmost image at any time with another image in the stack.

To create an image stack, select the thumbnails by ⌘/Ctrl+clicking them in the Content panel, and then choose Stacks ➢ Group As Stack. Bridge automatically compiles the images in the thumbnail list (see Figure 11.33).

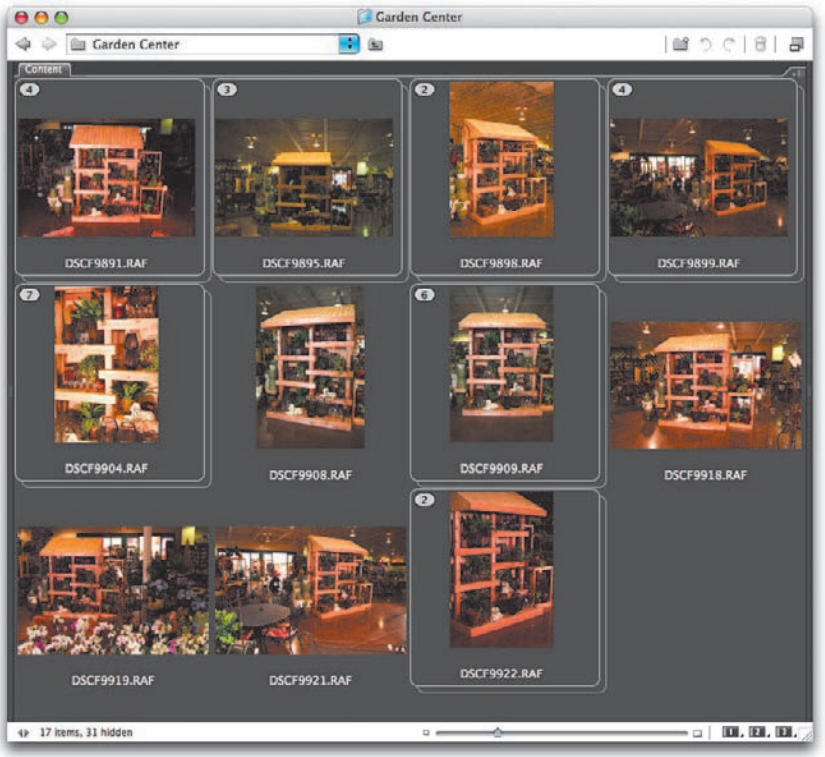


Figure 11.33
Image stacks help conserve space in the Content panel. They can be identified by the double outline positioned around the topmost thumbnail in the stack.

You can expand an image stack and view all the hidden thumbnails by choosing Stacks ➢ Open Stack (also accessible via the pop-up menu—Control+click on a Mac, or right-click with a two-button mouse), or by pressing ⌘/Ctrl+right arrow (see Figure 11.34). To collapse the stack, choose Stacks ➢ Close Stack or press ⌘/Ctrl+left arrow. You can also expand or collapse an image stack by clicking

the number displayed in the upper-left corner (the number indicates how many images are currently in the stack). If the thumbnail list contains more than one image stack, you can choose to expand or collapse all of them at once by choosing either command from the Stacks menu.

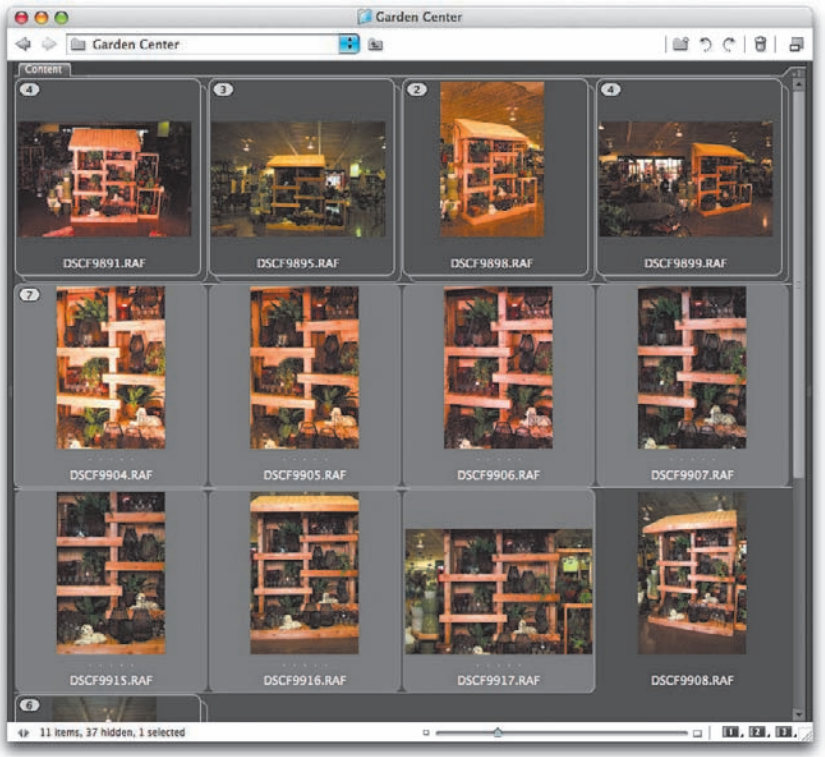


FIGURE 11.34
You can expand image stacks to display hidden thumbnails.

To swap out the topmost thumbnail with another one from the same group, expand the stack, select the thumbnail, and choose Stacks ➢ Promote To Top Of Stack.

ROTATING IMAGES

Bridge allows you to rotate image thumbnails so that they are displayed properly in the Bridge window. It is important to note that rotating images in Bridge *does not alter the file in any way* (to do that, you must open the file in Photoshop and apply the Image ➢ Rotate Canvas command). To rotate images in Bridge, select the thumbnails and do one of the following:

- Click the Rotate 90° Clockwise or Rotate 90° Counterclockwise button in the upper-right corner of the window.
- Choose Edit ➢ Rotate 180°, Rotate 90° Clockwise, or Rotate 90° Counterclockwise.
- Control+click (Mac) or right-click a selected thumbnail, and choose Rotate 180°, Rotate 90° Clockwise, or Rotate 90° Counterclockwise from the pop-up menu.

Opening and Placing Images

Bridge is a great tool for organizing and previewing images, but it can also be used for opening images in Photoshop and placing them into your InDesign and Illustrator layouts.

Opening Images

In Bridge, the quickest and easiest way to open an image in Photoshop is to double-click its thumbnail. However, if you prefer using menus, you can also choose File ➢ Open With ➢ Adobe Photoshop CS3, or select the same option from the pop-up menu by Control+clicking (Mac) or right-clicking the thumbnail. Alternatively, you can also select the thumbnail and press ⌘/Ctrl+O.

You can also open multiple images at once through Bridge. To do so, select the thumbnails (Shift+click to select adjacent thumbnails; ⌘/Ctrl+click to select nonadjacent thumbnails) and then apply any of the opening methods already described.

Note that double-clicking a RAW image (or a TIFF or JPEG when the Prefer Adobe Camera Raw preference is enabled) opens the image in Camera Raw and not Photoshop. You can access this preference in the Thumbnails panel of the Preferences dialog box (⌘/Ctrl+K).To open images in Photoshop after working with them in Camera Raw, click the Open Image button in the bottom-right corner of the Camera Raw window.

Placing Images

To place an image (or multiple images) directly from Bridge into an InDesign or Illustrator layout, select the thumbnails of the images you'd like to place and drag and drop them into the open document. It helps if you switch to Compact mode in Bridge, because this allows you to place the Bridge window next to the layout document without taking up too much room on your screen (see Figure 11.35).

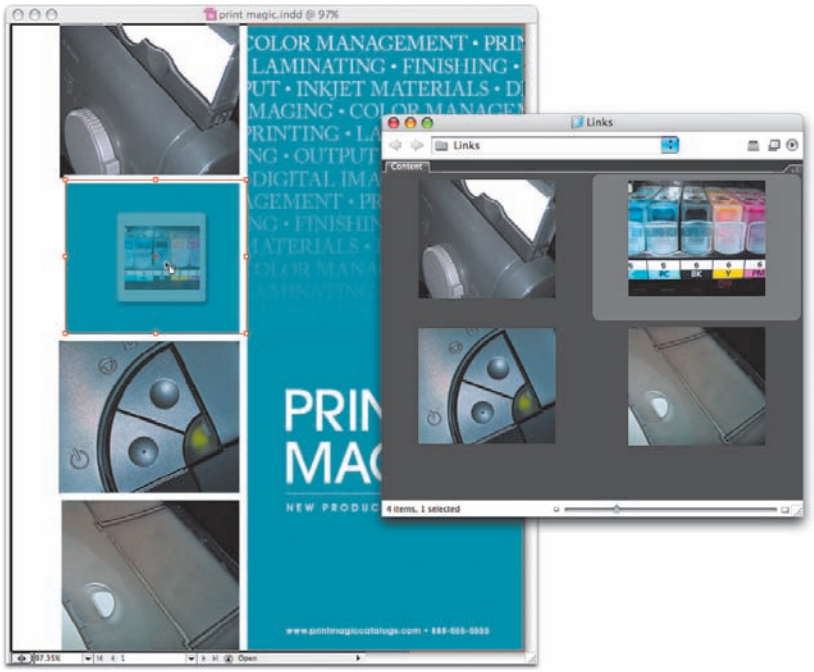


FIGURE 11.35
Placing images in Compact mode saves room on your screen.

When dragging and dropping from Bridge into InDesign or Illustrator, all images are placed as links (*not* embedded) at 100% of their print size; therefore, you may need to resize them in the document after they are imported. Remember that resolution rules apply here when placing and resizing graphics; therefore, be sure not to size images above 100% in your layout. It is safe to reduce their size (below 100%), because doing so will maintain resolution during output.

If an empty frame is selected in InDesign prior to dragging and dropping, the image is automatically placed in the frame at 100% of its print size. In this instance, you may need to resize the image to fit the frame by using the Direct Selection tool, or apply any of InDesign's Fitting commands located under the Object menu. Placing images in this way can be especially helpful when working on a catalog or similar layout that contains graphic frame placeholders (that is, empty graphic frames that are in position and awaiting content).

Synchronizing Color

CS3 contains enhanced color management settings that can make screen colors come as close as possible to what you'll see in the final printed piece (for more on color settings, see the color management section of Chapter 1, "Getting Started"). When you are using Bridge, the color settings for all applications in the Creative Suite can be synchronized.

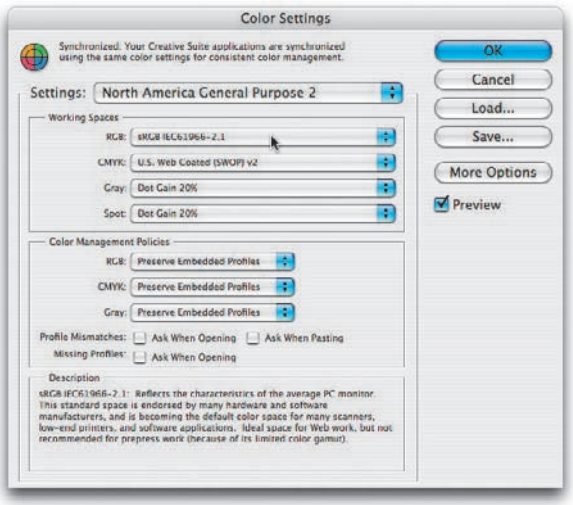
The CS3 synchronized color settings are enabled by default. This means that *all the applications in the suite* are using the same color settings. You can change the color settings for all the suite applications at once by choosing Edit ➢ Creative Suite Color Settings and choosing a different option in the Suite Color Settings dialog box. A brief description is listed next to each setting name in the dialog box (see Figure 11.36). To choose a custom setting, such as one provided by a commercial printer, click Show Expanded List Of Color Setting Files. Bridge then displays all settings placed in the Settings folder on your system.

FIGURE 11.36
The Suite Color Settings dialog box

The color setting that you choose applies specific working space profiles and color management policies for both RGB and CMYK color spaces. The idea here is to maintain color consistency on every device (print and display), through the use of color profiles.

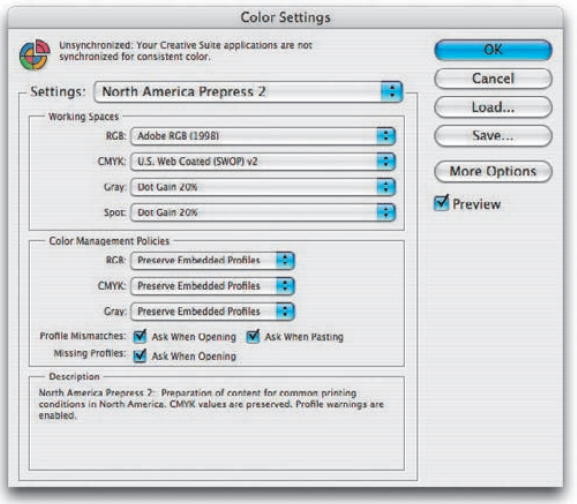
In the Color Settings dialog box (accessible under the Edit menu for each Creative Suite application), you can access more information about a working space profile, color management policy, or conversion option (color engine and rendering intent), by hovering the cursor over a menu item and referring to the description at the bottom of the dialog box (see Figure 11.37).

FIGURE 11.37
Hover the cursor over a menu item and refer to the description at the bottom of the Color Settings dialog box.



When implementing color management into your workflow, I recommend keeping the suite applications synchronized at all times. However, situations may arise when you'll need to unsynchronize color settings; say for example, to output a one-off job that requires different color settings than you would normally use with your current workflow. To unsynchronize, choose a different setting from the Color Settings dialog box in any of the suite applications. The application lets you know when the suite color settings are unsynchronized by displaying a warning at the top of the dialog box (see Figure 11.38).

FIGURE 11.38
The unsynchronized color settings warning



To resynchronize CS3 color settings, open Bridge and choose Edit ➢ Creative Suite Color Settings. Select a color setting from the Suite Color Settings dialog box and click Apply.

Working with Layer Comps

Without a doubt, the layer comps feature is my favorite in the entire Creative Suite. When it comes to print design, there is no other tool that gives you more creative control over your overall page layout designs. What makes this feature so attractive to designers is that it allows you to store all your layout ideas in one file and access them later in Photoshop, InDesign, or Illustrator.

I find layer comps especially useful when developing initial design concepts for single-page (or single-spread) advertisements and cover designs (magazines, feature articles, brochures, and books) that include a predominant number of bitmap graphics, such as a full-bleed background image or montage.

The Layer Comps Palette

You can think of the Layer Comps palette (Figure 11.39) as a sort of hybrid between the History palette and the Layers palette. It allows you to save the current state of a document's Layers palette and then return to it later. Layer comps allow you to store three types of layer information in the file:

- Layer visibility (hidden or shown)
- Position of items on each layer as controlled by the Move tool (not the stacking order of the layers)
- Appearance attributes (including blend modes, opacity, and layer styles)

Layer comps do not track any changes made to pixels, such as applied brushwork, gradients, or cloning. They also do not track edits made to type layers.

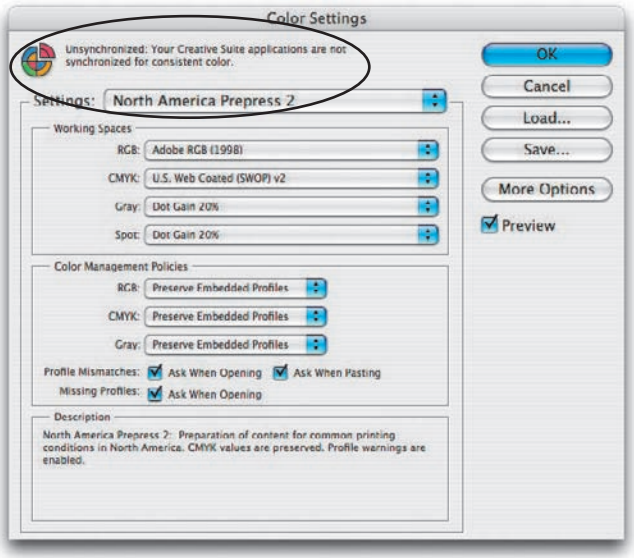


FIGURE 11.39
The Layer Comps palette

Working with layer comps eats up significantly less system memory than taking snapshots with the History palette, plus layer comps can be saved with the document even after it is closed (unlike snapshots). Also, saving layer comps adds very little to your overall file size.

To create layer comps, choose Window ➢ Layer Comps to display the Layer Comps palette, and then click the Create New Layer Comp button. You can also choose New Layer Comp from the Layer Comps palette menu.

Enter a descriptive name for the comp in the New Layer Comp dialog box and specify which settings you'd like Photoshop to save (visibility, position, and appearance). The more descriptive the name that you give each comp, the easier it will be to identify it later. You may also want to get into the habit of inserting comments. Your comments can serve as simple reminders to yourself about what's going on with each comp, or they can offer explanations to anyone else that you send the file to, such as a coworker, art director, or even a client (see Figure 11.40).

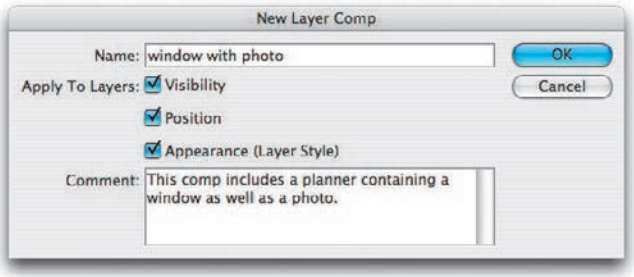


FIGURE 11.40
The New Layer Comp dialog box allows you to name the comp, specify settings, and insert comments.

Sometimes having to stop and add info into a dialog box can interrupt your creative process. Although adding descriptive names and comments is always a good thing to do, don't let it stop your creative juices from flowing. Instead, create your layer comps the "down and dirty" way by Option/Alt+clicking the Create New Layer Comp button in the Layer Comps palette. You can then add names and comments afterward by double-clicking the area surrounding each layer comp's name in the palette. Doing so allows you to access the Layer Comp Options dialog box, where you can enter more descriptive information.

After all your layout ideas are recorded, you can display any one of them by clicking in the column to the left of its name in the Layer Comps palette (see Figure 11.41). You can compare layer comps by selecting them (⌘/Ctrl+clicking each one) and then clicking the two arrow buttons (Next Layer Comp/Previous Layer Comp) at the bottom of the Layer Comps palette. With no layer comps selected in the palette, the arrow buttons allow you to cycle through them.

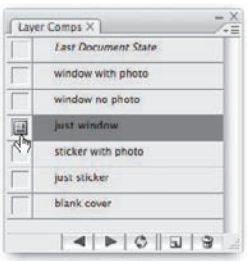


FIGURE 11.41
Click in the column to the left of the layer comp name to display it in the document.

The comp labeled Last Document State is there by default and represents the state of your document before displaying any of the other comps in the palette. For example, at some point you may decide to take a break from your work in order to review your layer comps and evaluate your progress. Displaying each layer comp in the palette can help you make some decisions about where to take your design ideas next. When you're ready to jump back into your design, you can pick up where you left off by clicking in the column to the left of Last Document State.

To save any changes made to a layer comp, click the Update Layer Comp button at the bottom of the Layer Comps palette. Doing so updates the currently selected layer comp in the palette. Note that Photoshop will display a warning icon in the Layer Comps palette for any changes that are destructive to comps, such as merging or deleting layers (see Figure 11.42).

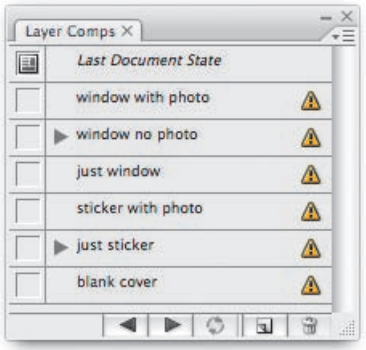


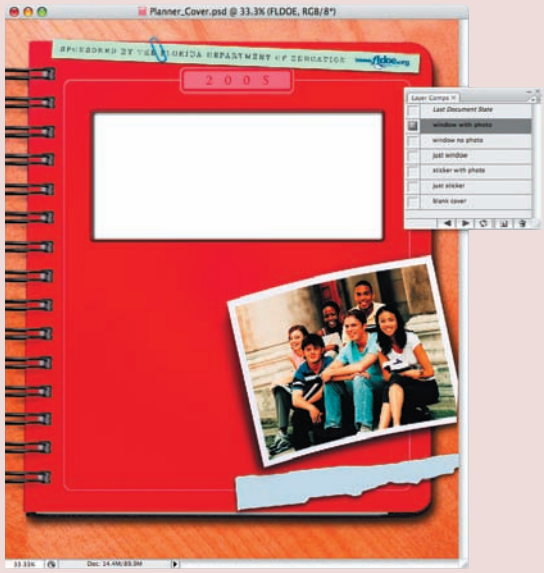
FIGURE 11.42
A warning icon indicates that a change has been made that the Layer Comps palette cannot track.

As you present layer comps to clients (see the following "Exporting Layer Comps to PDF" sidebar), I suggest keeping the Layer Comps palette organized and up-to-date by deleting any comps that get rejected. You can delete a layer comp (or multiple layer comps) by selecting them and clicking the trash icon at the bottom of the palette; or if you prefer, you can also drag them to the trash icon.

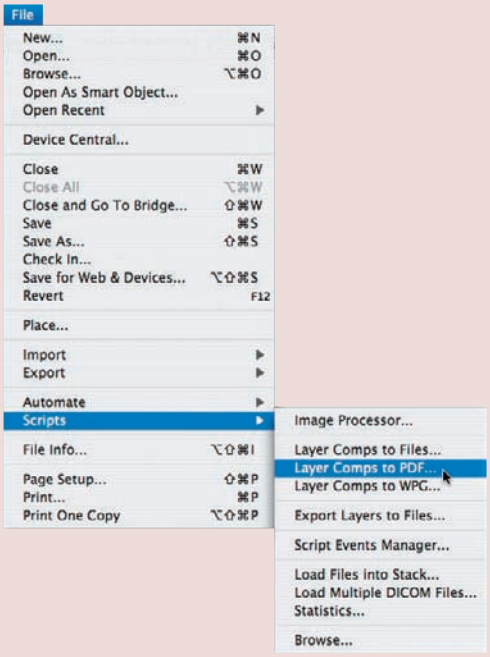
EXPORTING LAYER COMPS TO PDF

Photoshop comes with a built-in script that allows you to export your layer comps as a multipage PDF. You can use this feature to create PDF proofs to send to your clients for approval. You can even generate a PDF that presents your layout ideas in a slide show. Trust me—a good presentation can go a long way when trying to win over a client, and that's what makes this feature a dream come true for design professionals. Here's how it's done:

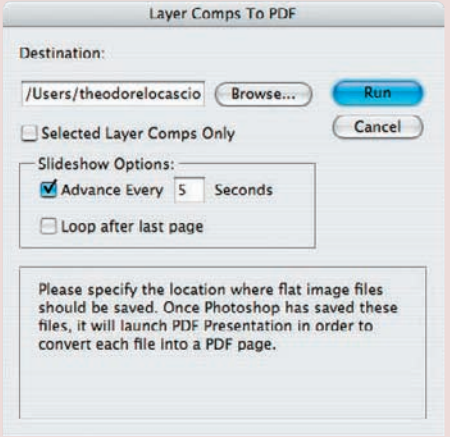
1. Using the Layer Comps palette, save several layer comps in a Photoshop layout document. The document can be a single-page (or single-spread) advertisement, a cover design, or any other type of print layout that contains a predominant number of bitmap graphics.



2. When you've finished saving all of your layout ideas as layer comps, choose File ➢ Scripts ➢ Layer Comps To PDF. In the Layer Comps To PDF dialog box that appears, choose a destination for the file by clicking the Browse button. This opens the Save As dialog box, where you can select where you'd like to save the file on your system. After you've located a file destination, click Save.



3. In the Layer Comps To PDF dialog box, enable the Selected Layer Comps Only option if you'd like to include only layer comps that are currently selected in the Layer Comps palette; otherwise, all layer comps will be included in the PDF. To create a slideshow, enable the Advance Every option and enter the number of seconds you'd like each page to display. For a continuous slideshow presentation, enable the Loop After Last Page option.



4. Click Run to generate the PDF. As Photoshop creates the PDF, it displays each layer comp onscreen twice. The first time the comp is flattened and saved to disk; the second time, the flattened comp is reopened and added to the presentation. When the process is complete, Photoshop displays a dialog box letting you know that the layer comps have been successfully exported. Click OK to close the dialog box.

5. Now you can open the exported PDF in Acrobat Reader or Acrobat Professional and preview your slideshow presentation. If you're happy with it, you can send it off to your client for approval.

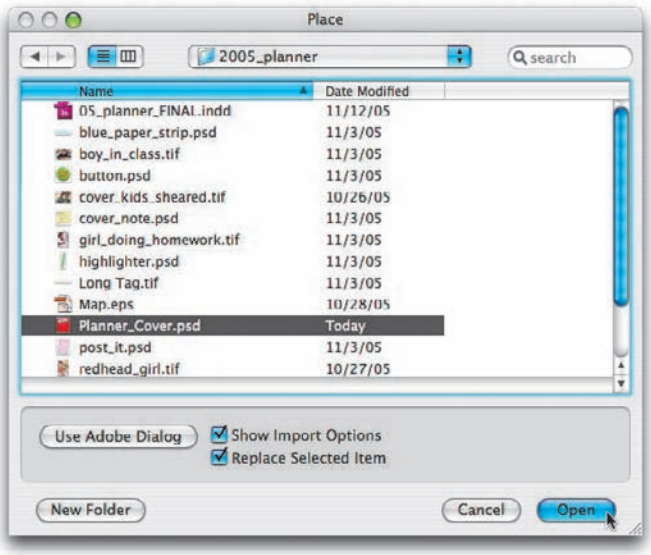
Layer Comps and InDesign

As a designer, you should take advantage of InDesign's Object Layer options, which allow you to control layer visibility—*including* layer comps—in placed PSDs (but *not* layered TIFFs). With InDesign, you can access layer comps upon import, or at any time after the image is placed.

To access a layer comp when placing an image into an InDesign document, perform the following steps:

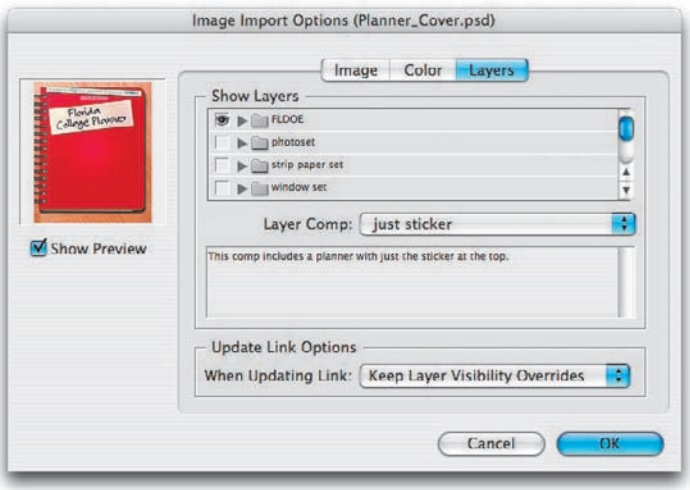
1. Import the PSD into your InDesign document by using the File ➢ Place command (⌘/Ctrl+D). To access the Image Import Options dialog box, enable Show Import Options before clicking Open. See Figure 11.43.

FIGURE 11.43
Import the PSD into your InDesign document



2. Click the Layers tab at the top of the dialog box to access the Layers panel. In the Layer Comp section of the panel, choose a layer comp from the drop-down list provided. Any layer comp comments that were saved in the PSD are displayed in the window beneath the Layer Comp list. See Figure 11.44.

FIGURE 11.44
Click the Layers tab and choose a layer comp.



3. Click OK to place the PSD in the document (Figure 11.45)

To display a different layer comp after the PSD is placed, choose Object ➢ Object Layer Options. In the resulting dialog box, select a different layer comp from the drop-down list. Select the Preview option to view your changes in the document as you make them. When you've finished, click OK to close the dialog box and apply your changes. See Figure 11.46.

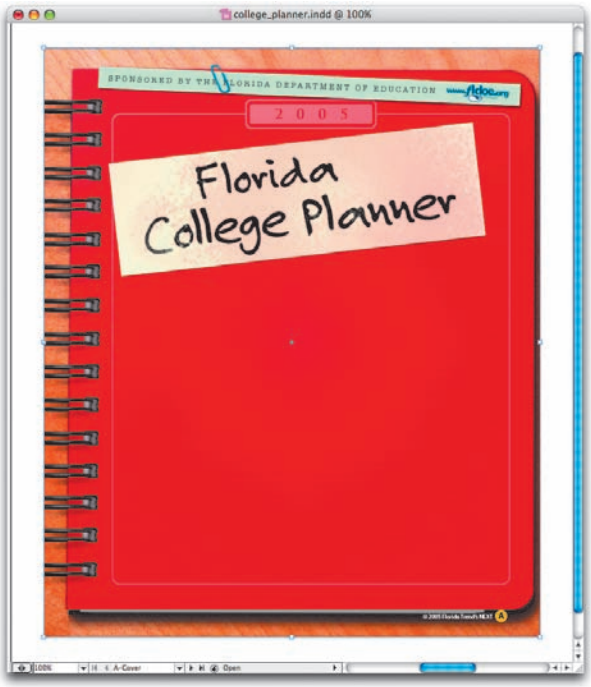


FIGURE 11.45
The PSD placed in the document

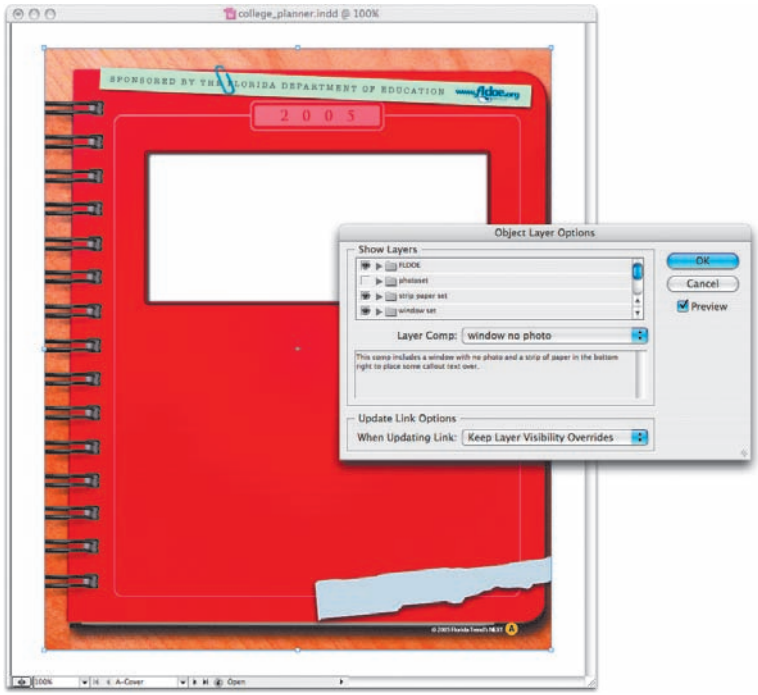


FIGURE 11.46
The Object Layer Options allows you to display a different layer comp after the PSD is placed.

Layer Comps and Illustrator

Illustrator also gives you access to layer comps but does not offer you as many options as InDesign. Unlike InDesign, Illustrator allows you to access layer comps only when placing a PSD into a document by using File ➢ Place. Unfortunately, in Illustrator there is no equivalent to InDesign's Object Layer options. This means that after the image is placed in the document, the only way to display a different layer comp is to re-import it.

To access layer comps when placing an image into an Illustrator document, perform the following steps:

1. Import the PSD into your Illustrator document by using the File ➢ Place command. Unlike when placing a PSD in InDesign, the Import Options dialog box automatically appears and you do not have the option to bypass it. When placing images of large file size, always treat them as links by enabling the Link option. See Figure 11.47.

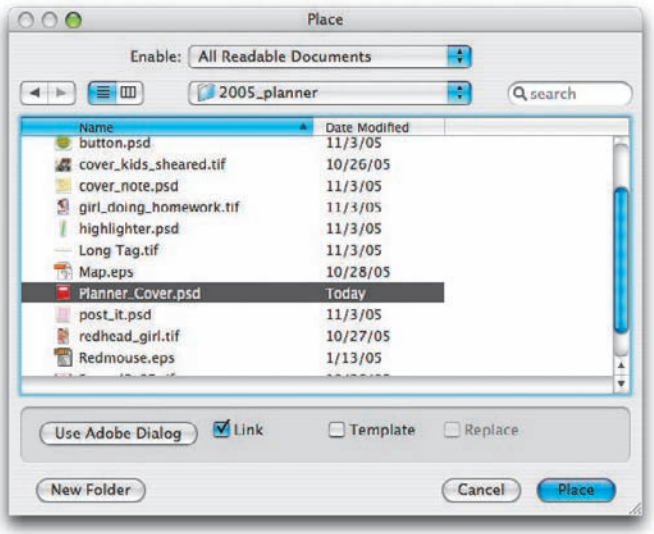


FIGURE 11.47
Import the PSD into your Illustrator document using the Place command

2. At the top of the Photoshop Import Options dialog box, choose a layer comp from the drop-down list provided. Any layer comp comments that were saved in the PSD are displayed in the window beneath the Layer Comp list. Select the Show Preview option to view the layer comp in the dialog box before placing. See Figure 11.48.
3. Click OK to place the PSD in the document (Figure 11.49).

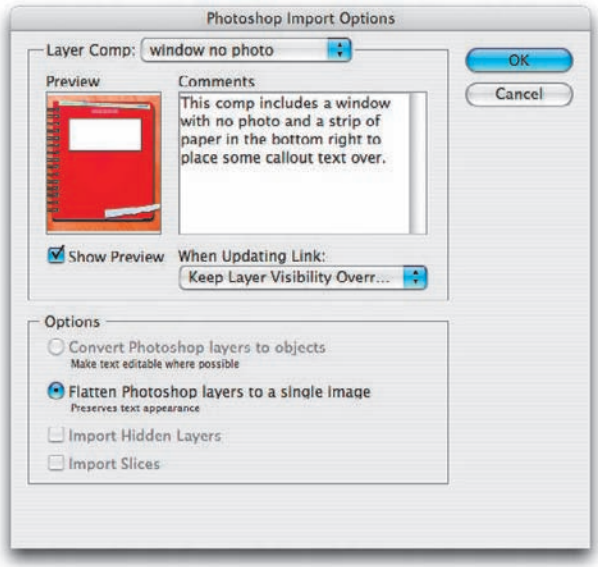


FIGURE 11.48
Choose a layer comp from the drop-down list provided in the Photoshop Import Options dialog box

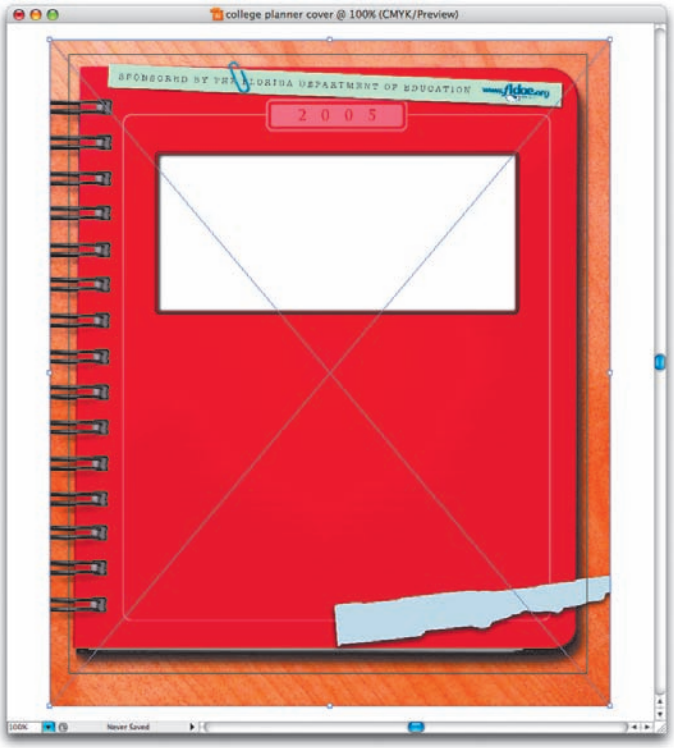


FIGURE 11.49
The PSD placed in the document

Using Photoshop with Illustrator

As you know, Photoshop is a pixel-based application. This means that all the graphics you create in Photoshop are resolution dependent. Illustrator, on the other hand, is a vector-based application that allows you to create graphics that are based on a series of mathematical curves, *not* pixels. Vector graphics always print nice and sharp, and are not resolution dependent. This means that you can size them as large or as small as you want in a layout without having to worry about how well they will output.

It is possible however, to work with vector information in Photoshop, and work with pixel-based images and effects in Illustrator. Photoshop's Type and Shape layers are both vector-based, while many of the filters and effects in Illustrator, such as Drop Shadow, Outer Glow, and Inner Glow, are pixel based. So how is this possible?

Well, Photoshop can interpret vector information to a degree, but in most cases (especially when working with QuarkXPress), the file must be flattened in order to place it in a layout application. Doing so rasterizes any vector information in the file (such as Type and Shape layers) by converting them to pixels. This softens the graphic's overall appearance and ultimately makes it resolution dependent. The only way around this is to place layered PSD files in InDesign—something you can do with QuarkXPress 6.5 or higher, but with limited access to layers, because Xpress cannot interpret Type or Shape layers in imported PSDs.

When transparent raster effects are applied in Illustrator (or InDesign and XPress), they are rasterized when the file is output. Depending on the transparency flattener setting you've chosen to apply when outputting the layout (that is, printing to a device or exporting to PDF), the vector information should remain sharp while all the raster information should remain soft.

So Photoshop and Illustrator do have some things in common. They both speak PostScript language, and as a result, you can share paths, shapes, and type, and even layers between the two applications (for more on PostScript, see Chapter 13, "Saving, Printing, and Output").

Importing and Exporting Paths

Photoshop comes with a vast array of custom shapes. However, despite the slew of choices that Photoshop gives you, you may still want to work with a custom shape that was created in Illustrator, such as a simple logo, end mark, or icon. It's also not uncommon for a designer to want to base a vector illustration on a path that was originally created in Photoshop. Thankfully, shapes and paths can be shared between the two applications.

Copying and Pasting between Applications

To copy and paste a path from Photoshop into Illustrator, select the path with the Path Selection tool and copy it to the Clipboard (⌘/Ctrl+C). Then in Illustrator with the document open, apply the Paste command (⌘/Ctrl+V). A Paste Options dialog box appears, offering two options: Paste As Compound Shape (fully editable) or As Compound Path (faster). Choose the preferred paste option and click OK to work with the path in Illustrator.

When you copy and paste a path from Illustrator into Photoshop, the Paste dialog box appears, giving you the option to import the path as a smart object, a rasterized image layer (pixels), a vector path (added to the Paths palette), or a Shape layer (see Figure 11.50). Choose an option and click OK.

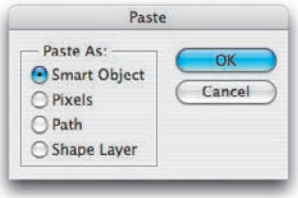


FIGURE 11.50
The Paste dialog box offers several path import options.

If you're planning to create a clipping mask from the imported path, you should definitely import as a Shape layer, because it will save you several steps.

BRINGING PHOTOSHOP PATHS INTO ILLUSTRATOR

Besides copying and pasting, there are two other ways that you can transport a Photoshop path into Illustrator:

Dragging and Dropping With both applications open, select the Photoshop path with the Path Selection tool and drag it onto the Pasteboard of the Illustrator document. Imported Photoshop paths remain fully editable in Illustrator.

Export Command In Photoshop, choose File ➢ Export ➢ Paths To Illustrator. In the Export Paths dialog box that appears, choose the path from the Write drop-down list (Mac) or the Paths drop-down list (Windows), and then select a Save As destination and click Save. You can then open the AI file in Illustrator, where the path will be fully editable.

Opening AI and PSD Layered Files

Layered Illustrator documents can be opened in Photoshop (with layers preserved), and vice versa.

OPENING LAYERED ILLUSTRATOR FILES IN PHOTOSHOP

To open a layered Illustrator document in Photoshop, you must export the AI file as a PSD. Choose File ➢ Export to access the Export dialog box, and select PSD from the Format drop-down list. Select a Save As destination and click Export. In the Photoshop Export Options dialog box that appears, choose a color mode (RGB, CMYK, or Grayscale). You must also choose a screen resolution for items that will be rasterized (300ppi for print graphics). To preserve layers, enable the Write Layers option with Maximum Editability selected. To edit live text in the exported PSD, enable the Preserve Text Editability option. If you're using color management, you should also embed the ICC profile. See Figure 11.51.

Click OK and open the PSD file in Photoshop. Note that editable text layers are converted to Type layers, and all exported paths and layers are rasterized with layers preserved. The items that usually don't convert well from Illustrator are transparency masks and some effects.

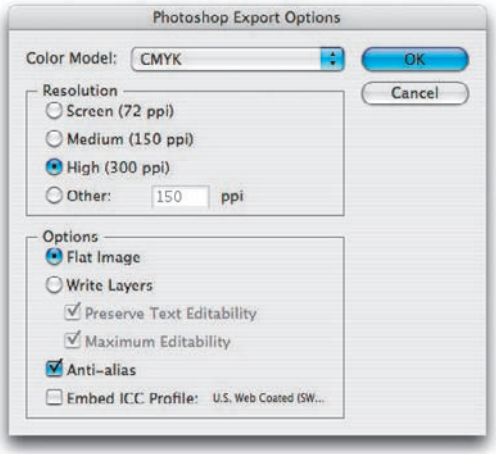


FIGURE 11.51
To open a layered Illustrator document in Photoshop, export the AI file as a PSD

OPENING LAYERED PHOTOSHOP FILES IN ILLUSTRATOR

When opening a layered PSD in Illustrator, the Photoshop Import Options dialog box appears, giving you two options (Figure 11.52):

- Convert Photoshop Layers To Objects and Make Text Editable Where Possible
- Flatten Photoshop Layers To A Single Image and Preserve Text Appearance

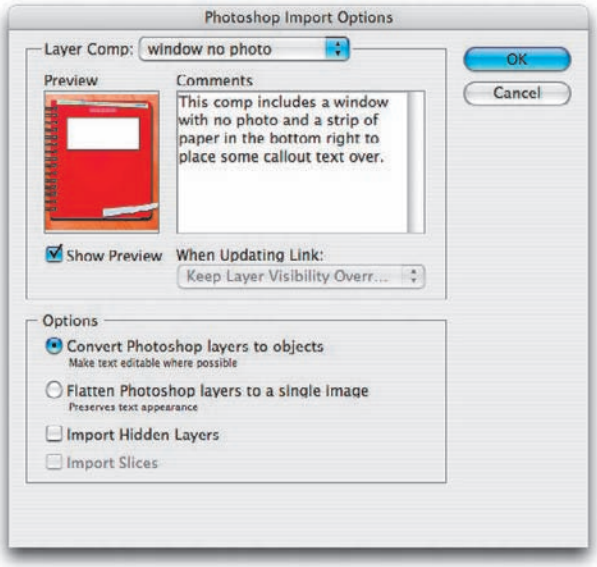


FIGURE 11.52
Photoshop Import Options

To preserve editability in Illustrator, choose the first option. This converts all image and shape layers to object layers in Illustrator, and keeps live text editable. All converted image layers are treated as embedded graphics.

Choose the second option to flatten all Photoshop layers into a single embedded image. Doing so prevents you from being able to make any edits to the file in Illustrator.

The Bottom Line

Create and Save a Custom Bridge Workspace The Bridge interface is easy to customize. The only items that can't be moved, resized, or hidden are the tools and the title bar that are located at the top of the window.

> **Master It** Start by taking a look at the built-in workspaces that come installed with Bridge. It's much easier and less time-consuming to identify a built-in workspace that comes close to your idea of the perfect work environment and then customize it to suit your needs.

Synchronize Color Settings through Bridge CS3 contains enhanced color management settings that can make screen colors come as close as possible to what you'll see in the final printed piece. When you are using Bridge, the color settings for all the applications in the Creative Suite can be synchronized.

> **Master It** When implementing color management into your workflow, I recommend keeping the suite applications synchronized at all times. The CS3 synchronized color settings are enabled by default. This means that *all the applications in the suite* are using the same color settings.

Access Layer Comps from InDesign and Illustrator When it comes to print design, there is no other tool that gives you more creative control than layer comps. What makes this feature so attractive to designers is that it allows you to store all your layout ideas in one file and access them later in Photoshop, InDesign, or Illustrator.

> **Master It** Using the Layer Comps palette, save several layer comps in a Photoshop layout document. The document can be a single-page (or single-spread) advertisement, a cover design, or any other type of print layout that contains a predominant number of bitmap graphics. Save the document as a PSD file.

Import and Export Paths between Photoshop and Illustrator Photoshop comes with a vast array of custom shapes. However, despite the slew of choices that Photoshop gives you, you may still want to work with a custom shape that was created in Illustrator, such as a simple logo, end mark, or icon. It's also not uncommon for a designer to want to base a vector illustration on a path that was originally created in Photoshop. Thankfully, shapes and paths can be shared between the two applications.

> **Master It** Locate an Illustrator or Photoshop file containing a path that you'd like to share between applications. Use one of the methods described in this chapter to import/export the path.

Chapter 12

Automation

Wouldn't it be great if you could make Photoshop do all the grunt work for you? Just think how much time you'd save if you could convert every image in a layout from RGB to CMYK all at once rather than one by one. Well, guess what—*you can!* By applying Photoshop's recorded actions and automate commands, you can breeze through the grunt work quickly—and that's what *production* is all about: spending less time doing repetitive tasks and more time playing Halo…um, I mean designing layouts.

In this chapter, you will learn to:

- Record and apply actions
- Batch-process an action
- Automatically crop and straighten photos
- Create a contact sheet

Working with Actions

An *action* is a recorded sequence of events that takes place in Photoshop. Whenever you play an action, all the recorded events are reenacted in order. The idea here is to have to perform a repetitive task only once. If you record all the operations involved with the task and save them as an action, Photoshop will repeat this task for you with just one simple click of a button. You can then run the action as many times (and on as many images) as you like, or you can apply it to a batch of images all at once.

Understanding Action Limitations

Although actions are great for automating repetitive production tasks, there are limitations involved with creating them. The first thing to keep in mind when recording actions is that the task you're attempting to automate must be entirely methodical. For example, you can't record an action that asks Photoshop to recognize any blemishes in a headshot photo and automatically spot heal them, nor can you ask it to select all the people in a photograph and extract them (but wouldn't it be great if you could?).

To make the most out of actions in a print design/production workflow, it's best to keep them as methodical as possible. Here are some examples of methodical actions that are easy to record and that work best when applied to images featured in a multipage print layout, such as a catalog or a brochure:

- Curves adjustments (for example, a generic high- or low-contrast "S-curve" setting—see Chapter 5, "Tonal and Color Corrections").
- Sharpening (for more on how to sharpen high-resolution print images, see Chapter 9, "Reducing Noise and Sharpening").

- Layer style effects, such as Drop Shadow or Outer Glow (see Chapter 8, "Layer Styles and Filter Effects").
- RGB to CMYK conversions (see Chapter 13, "Saving, Printing, and Output").
- Save As commands (see Chapter 13).

You should also know that there are several functions that Photoshop will simply not record, including zooming, scrolling, and applying brushstrokes. In addition, there are other operations that are recordable only when choosing the menu command, and not when applying the keyboard shortcut equivalent, or vice versa.

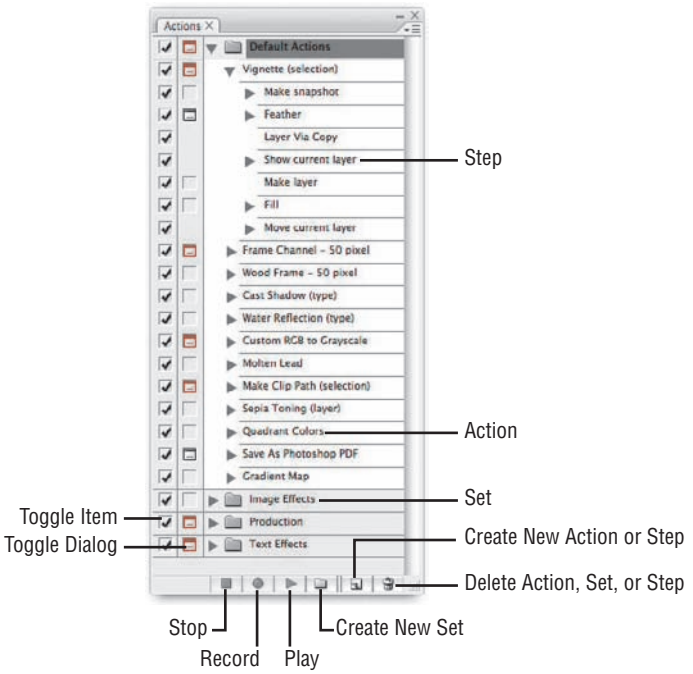
Using the Actions Palette

All actions are played and recorded by using the controls located at the bottom of the Actions palette (see Figure 12.1). To display the palette, choose Window ➢ Actions. All actions, including those that are installed with Photoshop, as well as those you create, can be displayed in the Actions palette.

In the Actions palette, actions are divided into sets that are displayed as labeled folders. The actions sets that are installed with Photoshop are named according to what they can do for you. Of all the actions sets that ship with Photoshop, the Production set, Image Effects set, and Text Effects are the most useful to print designers and production artists (see the "Utilizing Built-in Actions" section later in this chapter).

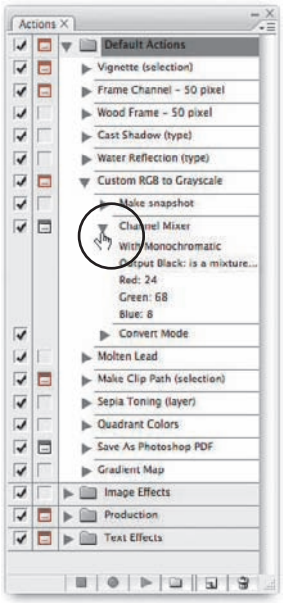
The first time you open the Actions palette, the Default set of actions is the only set displayed. You can load additional sets into the Actions palette by selecting them from the flyout palette menu list. Each new set that you load is displayed in the Actions palette until you delete it or until you choose the Reset Actions command from the Actions palette menu.

FIGURE 12.1
The Actions palette



To access the actions stored in a set, toggle the arrow next to the folder in the Actions palette. You can also access the recorded steps in each action by toggling the arrow next to its name (see Figure 12.2).

FIGURE 12.2
You can hide or show actions and steps by clicking the arrows in the Actions palette.



BUTTON MODE

Photoshop allows you to change the way actions are displayed in the Actions palette. You can switch from the default display of folders, titles, and steps to the much simpler color-coded Button mode. To do so, choose Button Mode from the Actions palette flyout menu. In this mode, Photoshop displays every action that is currently loaded into the palette as a button and hides all the controls that usually appear at the bottom of the palette. To run an action in Button mode, all you have to do is click the button. Although this clean palette display makes it much easier to locate actions, there is a disadvantage in that it doesn't allow you to view any of the steps that make up each action. Working with actions in Button mode is also limiting in that you cannot create, edit, duplicate, or delete actions.

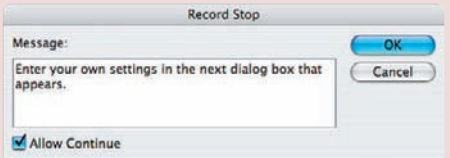
Recording Actions

Recording an action is relatively simple, provided you've thought the steps through ahead of time and are aware of the limitations. It helps to do a test run first. For more-involved actions, I suggest mapping out your steps on a piece of paper before recording. Also, to guard against mistakes, work on a copy of the image by taking a snapshot in the History palette. When you're finished doing all of your prep work, perform the following steps to record your action:

1. Choose Window ➢ Actions to open the Actions palette.
2. Click the Create New Action button located at the bottom of the Actions palette, or choose New Action from the palette's flyout menu.
3. In the New Action dialog box that appears, enter a name for the action and choose which set (of the currently displayed sets in the palette) that you'd like to save it in. Note that all actions must be saved in a set (I recommend that you create a custom set of your own). The New Action dialog also allows you to assign a display color to the action, and allows you to assign a function key for applying the action.
4. Click the Record button in the New Action dialog.
5. Perform the steps that make up the action.
6. After you've completed the last step, click the Stop button at the bottom of the Actions palette, or choose Stop Recording from the palette's flyout menu.

Action Messages

When setting up an action, you can choose to insert a message that displays whenever the action is run. Doing so stops the action wherever the message is inserted and displays a message dialog box. The message can be a reminder or warning such as, "Be sure to save before continuing," or instructions such as, "Enter your own settings in the next dialog box that appears." To insert a message, select Insert Stop from the Actions palette flyout menu. In the Record Stop dialog box that appears, enter your message in the Message field.



If you'd like to allow the viewer to continue with the action after the message appears, enable the Allow Continue option. Doing so allows the viewer to continue running the action after clicking the Continue button in the message dialog box.

With the Allow Continue option disabled, Photoshop stops the action entirely and automatically selects the next step in the Actions palette. The only way for the viewer to continue with the action after the message appears is to click OK in the message dialog box and then click the Play button at the bottom of the Actions palette.

Running Actions

To run an action, select the action's title in the Actions palette and click the Play button. You can also run an action by ⌘/Ctrl+double-clicking the action's title. Most actions can be applied only to an image that is already open; however, some actions may start out with steps that create new documents from scratch, such as the Letter, Tabloid, and Legal Canvas actions in Photoshop's Production set. It is possible to run actions on multiple images that have not yet been opened in Photoshop, but this can be done only by using the Automate ➢ Batch command (see the "Using Batch Automation" section later in this chapter).

Toggle Dialog Box

By default, Photoshop does not display dialog boxes for any actions that you run. Instead, settings are applied without displaying any dialog boxes onscreen. However, it is possible to force Photoshop to stop an action and display a dialog box so that the user can enter specific settings before continuing. To do so, click in the second column of the Actions palette next to the step. This places a black dialog box icon next to the step, and a red dialog box icon next to the action's title (see Figure 12.3).

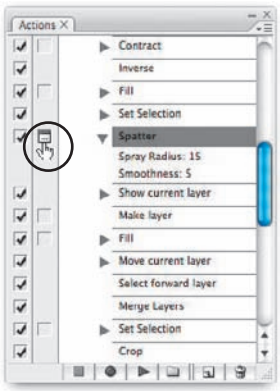


Figure 12.3
Before running the action, click once in the Toggle Dialog column next to the step to tell Photoshop to stop and display the dialog box.

Clicking a red dialog box icon displays a warning, which asks whether you'd like to add a stop to every step in the action. In most cases, adding that many stops is not what you would want to happen. When the warning dialog box appears, be sure to click Cancel, and be careful not to click a red dialog box icon in the future (see Figure 12.4). You really want to click only in the blank column area next to a specific step in order to add a stop, or to click a black icon to remove the stop.

Figure 12.4
Clicking a red dialog box icon in the Actions palette displays this warning dialog box. Unless you'd like to add a stop to every step in the action, be sure to click Cancel.

Saving Actions

After you've created a perfect set of efficient, time-saving actions, you should definitely save it. Doing so allows you to clear the Actions palette and reload the set at any time. It also allows you to share your custom-built actions with other designers on a production team.

Note that Photoshop allows you to save only sets of actions—*not* individual actions. Before saving, you must create a new set by clicking the Create A New Set button at the bottom of the Actions palette, or by choosing New Set from the Actions palette flyout menu. Give the set a descriptive name, and then drag the actions that you'd like to save into it (see Figure 12.5).

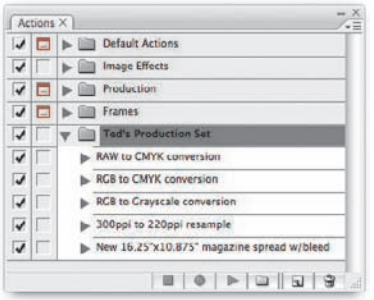


FIGURE 12.5
You must move your custom actions into a new set before saving.

With the new set selected in the palette, choose Save Actions from the Actions palette flyout menu. When the Save dialog box appears, click the Save button. Note that on the Macintosh platform (unlike Windows), Photoshop defaults to the Application Support ➢ Adobe ➢ Adobe Photoshop CS3 ➢ Presets ➢ Actions folder, *not* the Presets folder located in the application folder where the rest of the built-in actions are stored. To keep things more organized, I would recommend saving all your actions in the same folder as the built-in actions (Applications ➢ Adobe Photoshop CS3 ➢ Presets ➢ Actions).

After you've saved your actions, you can reset, restore, or clear the actions in the Actions palette at any time, without having to worry about potentially losing all the actions that you spent valuable time creating. You can always restore a custom action set by choosing Load Actions from the Actions palette flyout menu. In the Load dialog box that appears, select the set from the Actions folder and click Load. The set automatically reappears in the Actions palette.

To share your custom set of actions with other designers on a production team, locate the ATN file on your system, and then make it available to your coworkers via email, a shared network folder, CD, or FTP download.

Utilizing Built-In Actions

Of all the actions sets that ship with Photoshop, I find that the Production set and Image Effects set are the most useful to print designers and production artists. If you use a lot of Photoshop type effects in your print layouts, there are also some useful actions in the Text Effects set (I prefer to create the majority of my text effects in vector-based applications such as Adobe's Illustrator or InDesign—see Chapter 8). Note that the Default set is a collection of actions that are available in other sets, such as Vignette from the Frames set.

Image Effects Set

There are several actions in the Image Effects set that you can use to create eye-catching effects that are commonly used in print layouts. Here are some examples:

Sepia Toning (layer) applies a sepia effect (a reddish-brown tint) to an RGB or CMYK image (Figure 12.6). This effect is commonly used to achieve an aged look. To apply this action to a grayscale image, select Sepia Toning (Grayscale).

Figure 12.6
Apply Sepia Toning (layer) to an image to achieve an aged look.

Before

After

Horizontal or Vertical Color Fade applies a smooth transition from color to grayscale (Figure 12.7). This effect is often used in print layouts to suggest the passage of time from past to present.

FIGURE 12.7
Apply Horizontal or Vertical Color Fade to an image to suggest the passage of time from past to present.

Before

After

Production Set

The actions in the Production set are much more practical than they are creative. Here is where you'll find actions you can use to complete simple, repetitive tasks, such as creating a new document or converting images to grayscale.

Custom RGB to Grayscale/Custom CMYK to Grayscale converts the image from RGB or CMYK to Grayscale mode by using the Channel Mixer adjustment (Figure 12.8) (see Chapter 4, "Working with Color"). The action stops at the Channel Mixer step, allowing you to apply your own dialog box settings.

Figure 12.8
Custom RGB to Grayscale/Custom CMYK to Grayscale

Before | After

Frames Set

The Frames set includes actions that can be used to place eye-catching borders around your print images. The assortment of built-in frame effects ranges from simple (Drop Shadow), to classic (Vignette), to grungy (Spatter).

Drop Shadow Frame places a basic drop shadow underneath the image (Figure 12.9). Although this effect is often created in Photoshop, it's worth noting that you can also create the same effect in layout applications such as Adobe InDesign CS3 or QuarkXPress 7 (see Chapter 8).

Figure 12.9
Drop Shadow Frame

Before | After

Vignette (Selection) creates a bright center and dark edges surrounding it (Figure 12.10). Vignettes can be very effective when used in a print layout, because they tend to draw the viewer's eye to the center of the image. This action requires that you make a selection around the image first. If you're going for the classic vignette look, I suggest using either the Rectangular or Elliptical Marquee tools to make your selection.

FIGURE 12.10
Vignette (Selection)

Before After

Spatter Frame adds a ragged edge around the image, giving it a tattered appearance (Figure 12.11). This effect is often used in print layouts that are trying to capture a modern, edgy audience, such as a music advertisement or concert poster.

FIGURE 12.11
Spatter Frame

Before After

Editing Built-in Actions

Photoshop allows you to edit any of the built-in actions that come with the application. This is something you may want to consider doing, especially if you plan on using these actions with the Batch automate command. A smooth, uninterrupted batch operation usually requires a final Save As step that is generally not included in any of the built-in actions.

You can add, alter, move, delete, or duplicate steps in a built-in action at any time. If you'd like to save the changes you've made, be sure to select the entire set in the Actions palette and choose Save Actions from the Actions palette flyout menu. For Mac users, I recommend saving the edited set (along with all your other action sets) in one location—Applications ➢ Adobe Photoshop CS3 ➢ Presets ➢ Actions. I also recommend choosing a different name for the edited set and preserving the original.

Action Resources

If you're hungry for actions, by no means limit yourself to the basics that are included with Photoshop. There is a virtual treasure trove of prewritten actions floating around out there in cyberspace just waiting for you to download and use. Many of these actions are free, whereas others require that you pay a fee.

One of the best places to download free Photoshop actions is from Adobe's Exchange website at `http://www.adobe.com/cfusion/exchange/index.cfm`. Be sure to click the Photoshop button to go directly to the Photoshop Exchange page, and then choose Actions from the Categories menu. You can then scroll through the available actions and click to download them (see Figure 12.12).

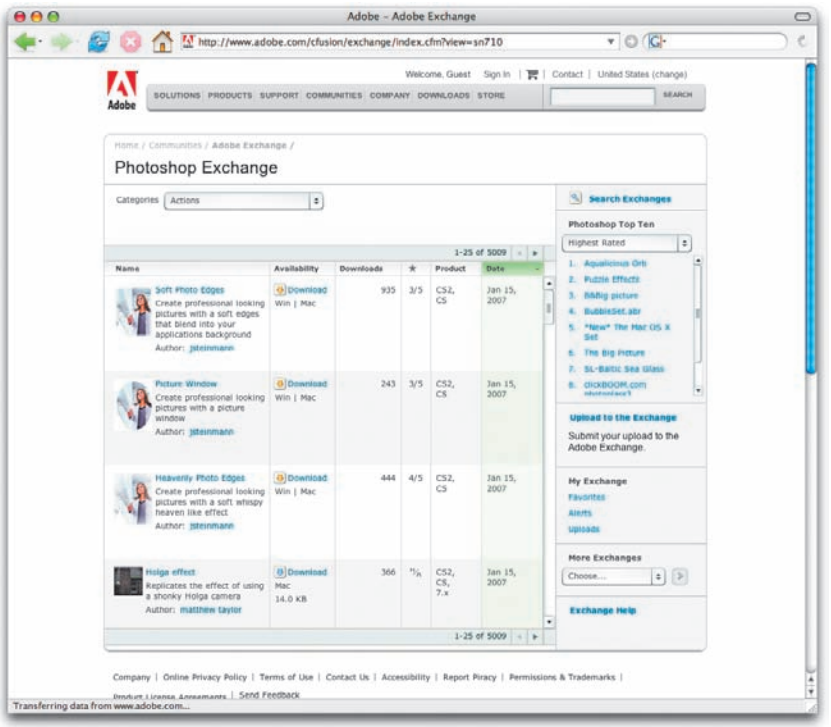


Figure 12.12
The Adobe Exchange website contains several free Photoshop actions that you can download and use.

Other websites that offer various Photoshop actions downloads are as follows:

- `www.actionfx.com`
- `www.atncentral.com`
- `http://www.photoshopsupport.com/tools/actions.html`

Applying Automate Commands

When it comes to automation in Photoshop, you're certainly not limited to actions alone. There are also a series of useful automate commands that are accessible under the File ➢ Automate submenu. In this section, we'll take a look at the commands that are most useful to print designers and production artists, including Batch, Crop And Straighten Photos, Contact Sheet II, and Create Droplet.

Using Batch Automation

One of the most powerful ways to automate Photoshop is to apply the Batch command. Doing so allows you to run an action on a group of images all at once, and then instruct Photoshop to do one of the following:

- Save the images as new files
- Keep the images open in Photoshop
- Save and close the images, overwriting the source files

For the most part, applying this command is fairly simple; however, you should be aware that the settings in the Batch dialog box are particularly counterintuitive. You can access the Batch dialog box from Photoshop as well as from Bridge (see the following "Batch-Converting RAW Files with Bridge" sidebar). To access the Batch dialog box from Photoshop, choose File ➢ Automate ➢ Batch.

From the Set pop-up list at the top of the dialog box, choose which action set (of the currently loaded sets in the Actions palette) that you'd like to select an action from. Then from the Action list, choose the action you'd like to apply to the images.

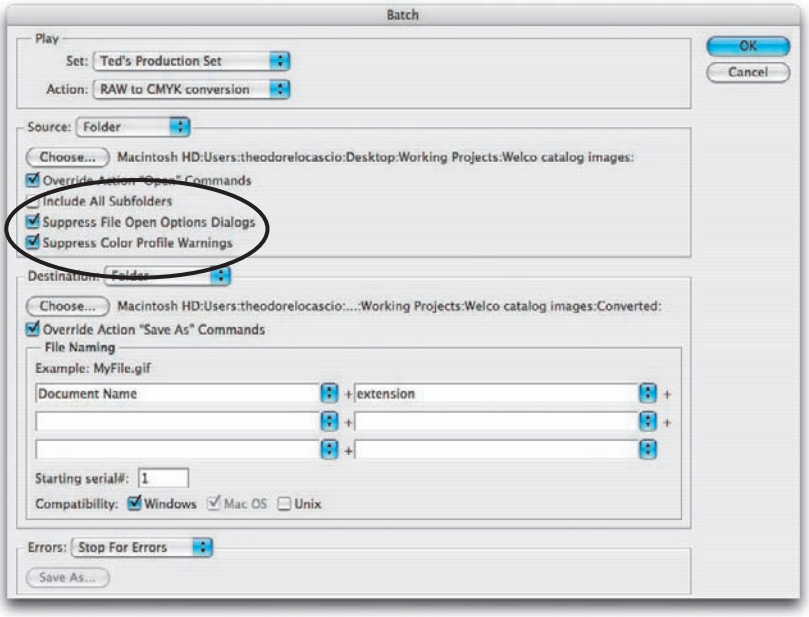
You can then tell Photoshop where to access these images:

- To apply the batch action to images as they are imported from a scanner, choose Import from the Source list (a scanner must be hooked up to your system to access this option; otherwise, it will remain grayed out). Then select the scanner from the From list.
- If you'd like to apply the batch action to all images that are currently open in Photoshop, choose Opened Files from the Source list.
- If the images are located in a folder somewhere on your system, select Folder from the Source list. Note that Photoshop will apply the action to *every* image in the folder; therefore, if the folder contains additional images that you *do not* want to apply the action to, you should place the source images in their own folder before applying the Batch command.

When working with a source folder, several more options become available in the Batch dialog box:

- Click the Choose button to open the Choose A Batch Folder dialog box, and browse to the folder on your system.
- Enable the Override Action "Open" Commands option only if the action you are applying contains Open steps. The Batch command automatically opens images for you, so if there are any Open commands in the action, they will confuse Photoshop and stop the automation. To use Open commands that are saved in the action, be sure to turn this option on. If the action does not contain any Open commands (most of the built-in actions do not), leave this option turned off.
- Enable the Include All Subfolders option if there are subfolders of images in the source folder that you'd like to include in the batch.
- Unless you plan to monitor the batch automation and respond to various stop dialog box commands, always enable the Suppress File Open Options Dialogs and Suppress Color Profile Warnings options (see Figure 12.13).

FIGURE 12.13
For uninterrupted batch automation, always enable the Source: Folder options shown here.



The next step is to tell Photoshop what you'd like to do with the images after the batch action has been applied:

- If you'd like to keep the images open in Photoshop, choose None from the Destination list. If you plan to save the images in different file formats, you should choose this option and save each one manually.
- To allow Batch to save and close the images, choose Save And Close from the Destination list. In order for the automation to run uninterrupted, a Save step must be included in the action, and the Override Action "Save As" Commands option must also be enabled. Note that Photoshop records both the preferred file format and the file destination in the step. If

you do not include a Save step in the action, Photoshop stops the automation, displays the Save As dialog box for every image in the batch, and awaits your input before continuing. To overwrite the source files, be sure to include a Save As step with the same file format chosen as the original, or include a Save step (rather than Save As). Note also that the Save And Close destination option is not available when applying the batch action to images that are imported from a scanner.

- To save the images in any folder other than the source folder (and avoid overwriting the original source files), choose Folder from the Destination list.

Choosing Folder as a destination also gives you access to the File Naming options that are located underneath. Select your preferred naming convention by choosing from the options available in the lists provided or by typing in the available fields. I generally like to keep my document names short and simple, and therefore usually choose Document Name in the first field and extension (lowercase) in the second field. However, if you're working with hundreds of images as part of a large production team, you may want to include a serial number, serial letter, or date information to keep better track of them. Photoshop allows you to include and display all this information in either lowercase or uppercase and in any order that you like (see Figure 12.14).

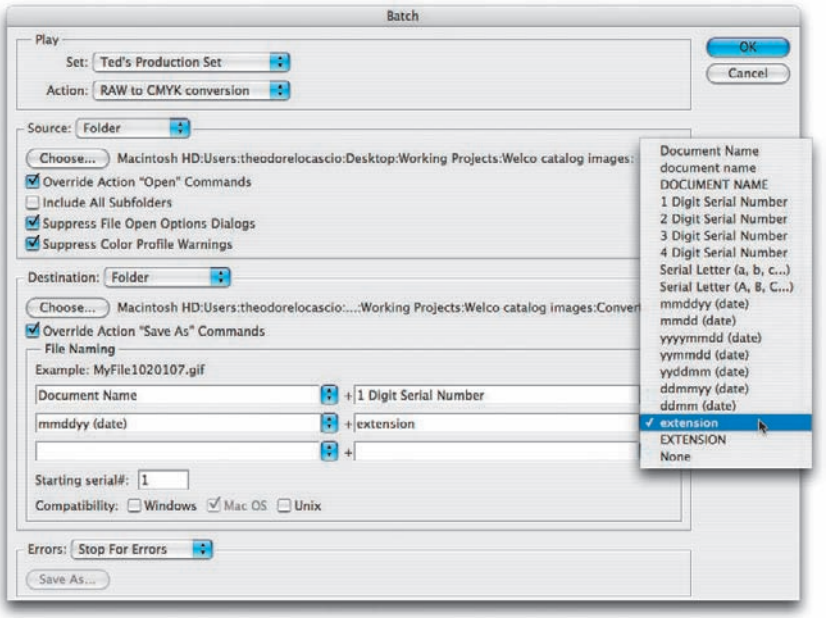


FIGURE 12.14
When saving images through Batch to any folder other than the source folder, Photoshop allows you to include and display the filename information however you choose.

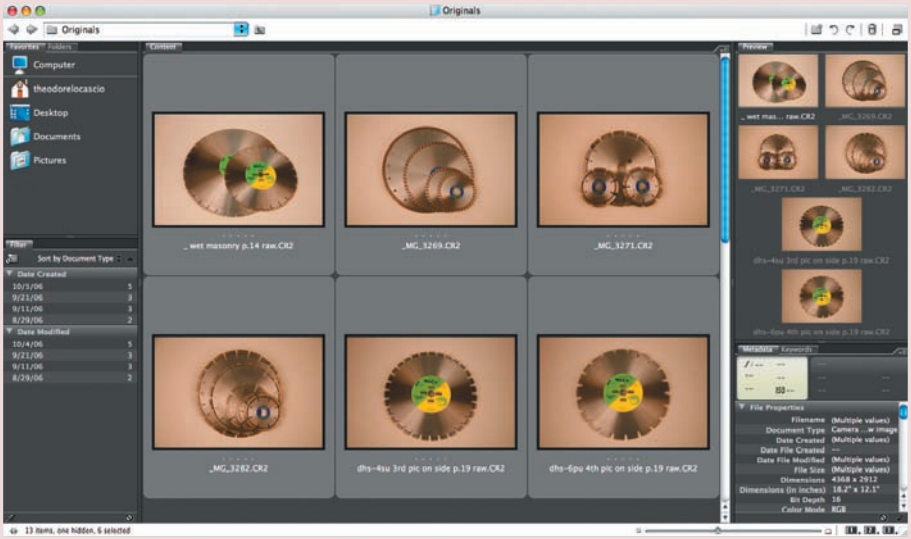
To ensure maximum compatibility when saving images with Batch, be sure to check both the Windows and Mac OS options available at the bottom of the dialog box.

After you've finished entering all of your preferred settings, click OK to batch-process the files. Don't be surprised if something unexpected occurs and the automation stops abruptly. It's easy to make a mistake when setting up a batch action. When this happens, double-check the action to make sure all the necessary Open, Save, and Close steps are included, and then reopen the Batch dialog box and make sure all the settings are correct. Keep running the action until you've worked out all the kinks.

Batch-Converting RAW Files with Bridge

One other way to apply batch automation is to use Bridge as the source. I like to use this feature in my own workflow to batch-convert RAW images. Here's how I go about doing it:

1. I select the RAW images that I'd like to batch-convert by ⌘/Ctrl+clicking them in Bridge.



2. The action that I'd like to apply to these images is already set up and loaded into Photoshop's Actions palette. When the action is run, it automatically performs the following steps:

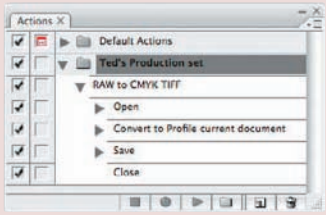
   A. Apply a Camera Raw preset (developed prior to recording the action).

   B. Open the image in Photoshop.

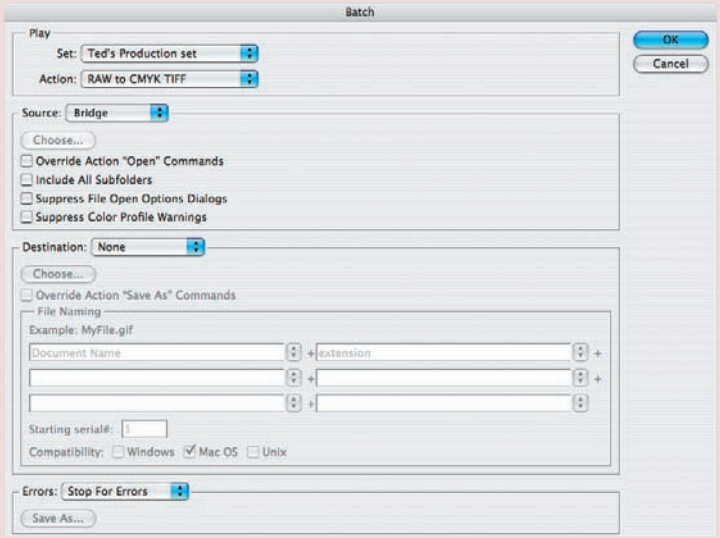
   C. Convert the image from RGB mode to the currently chosen working CMYK profile (US Web Coated (SWOP) v2).

   D. Save the image as a TIFF (so it can be placed in a layout document—RAW images cannot).

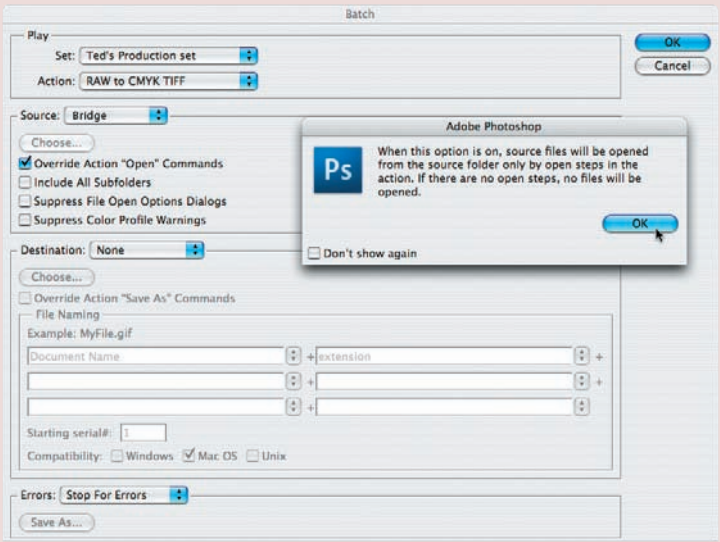
   E. Close the document.



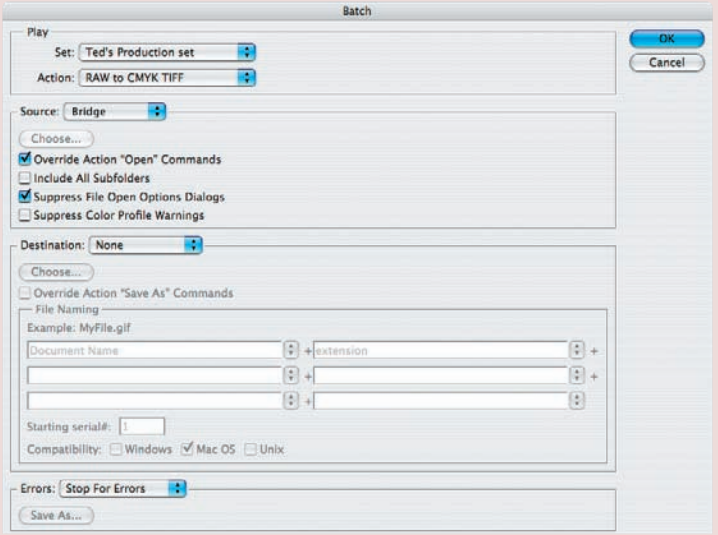
3. The next step is to choose Tools ➢ Photoshop ➢ Batch, which opens the Batch dialog box in Photoshop. From the Set list at the top of the Batch dialog box, I select the custom set Ted's Production Set. Then from the Action list, I choose RAW To CMYK TIFF.



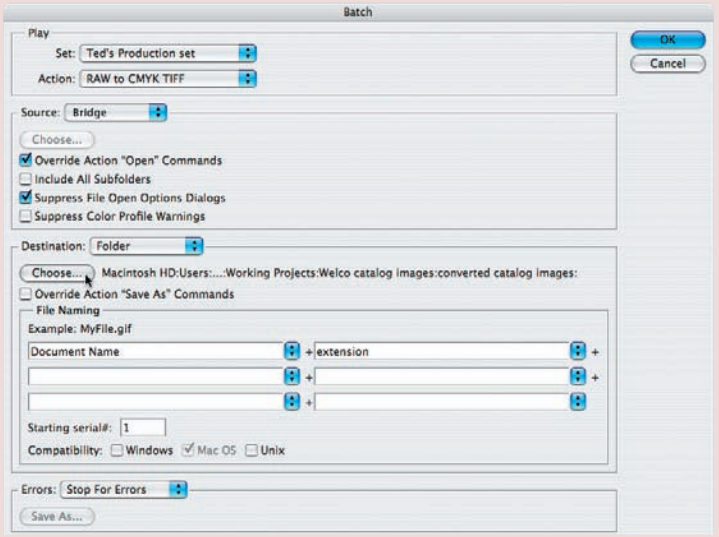
4. Because I chose to apply batch automation through Bridge rather than Photoshop, the Source list automatically displays Bridge. As described in step 1, the custom RAW To CMYK TIFF action contains an Open step; therefore, I must enable the Override Action "Open" Commands option. Doing so tells Photoshop to use the Open step.



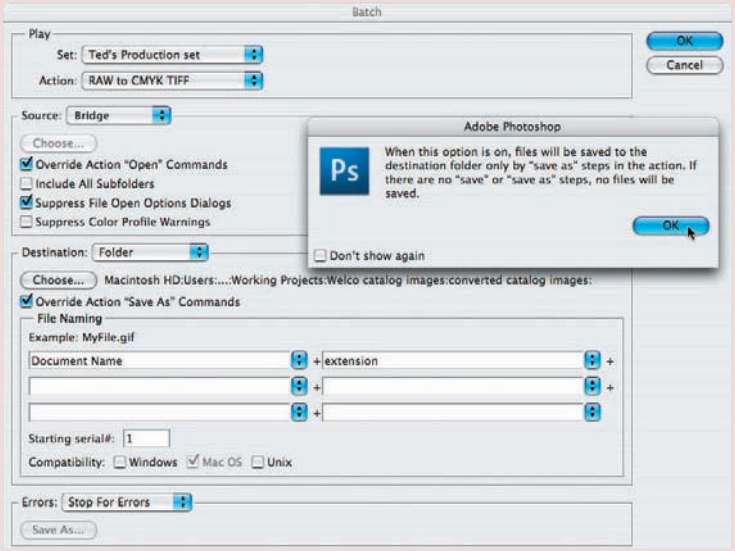
5. I enable the Suppress File Open Options Dialogs option. This prevents the Camera Raw dialog box from appearing onscreen and stopping the automation after the action is played.



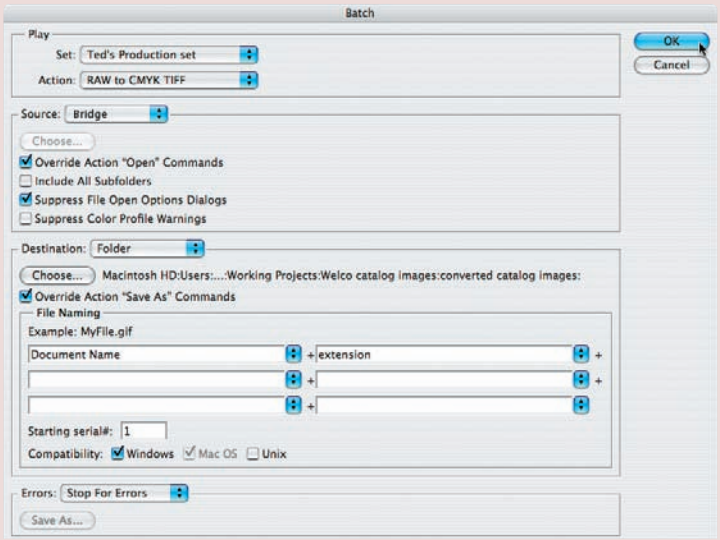
6. To save the images in a different location, I choose Folder from the Destination list. By clicking the Choose button, I am able to create a new folder from within the Choose A Destination Folder dialog box. I name the folder Converted Catalog Images, save it in my project folder, and then click Choose.



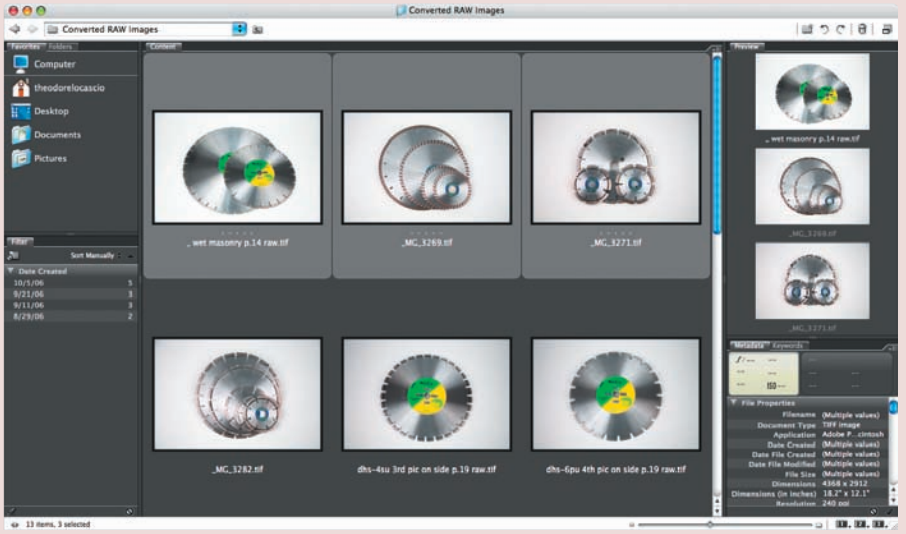
7. As described in step 1, the custom RAW To CMYK TIFF action contains a Save As step; therefore, I must enable the Override Action "Save As" Commands option. Doing so tells Photoshop to use the Save As step recorded in the action.



8. I leave the File Naming settings at their defaults (Document Name + extension), and for the Compatibility setting, I make sure that Windows and Mac OS are both selected. Then I click OK to run the batch automation.



9. Photoshop does the rest of the work for me while I go get lunch. When I get back, the files are all converted and waiting for me in the Converted Catalog Images folder. I can preview them in Bridge.



Cropping and Straightening Photos

Crop And Straighten Photos is another great Photoshop feature that you can use to perform one of the most mind-numbing production tasks. If you've ever gang-scanned photos before (that is, placed multiple photos on a flatbed scanner and scanned them all at once), you're familiar with the grunt work involved after the gang image is imported into Photoshop. With each gang-scan, you're forced to spend valuable time selecting each image, copying and pasting it into its own image window, and cropping and straightening it. This grueling task could take up the better part of a week when scanning in hundreds of images for a catalog, book, or magazine layout.

A much faster way to go about this task is to gang-scan your images over a solid-color background—making sure to leave at least ⅛″ of space between them—and then choose File ➢ Automate ➢ Crop And Straighten Photos. Photoshop automatically detects the image boundaries and duplicates each one, fully cropped and straightened into its own image window (see Figure 12.15).

To crop and straighten specific photos from within a gang-scan, you must select each one with the Rectangular Marquee tool before applying the Crop And Straighten Photos command. You can also apply the Crop And Straighten Photos command to individual, single-photo scans.

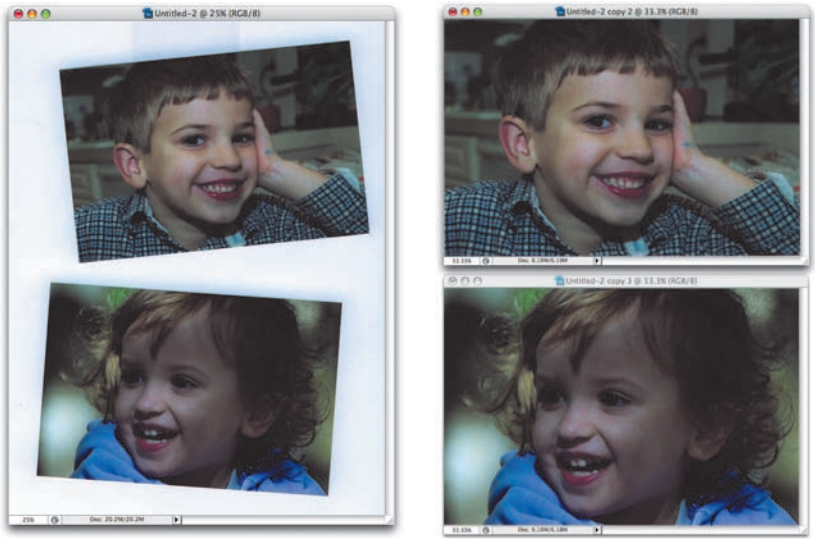


FIGURE 12.15
The original gang-scan (left). The individual images separated, cropped, and scanned (right).

Creating a Contact Sheet

The Contact Sheet II command automatically generates a thumbnail preview document. This feature can be helpful when trying to decide which images to use in a print layout. To access the Contact Sheet II dialog box, choose File ➢ Automate ➢ Contact Sheet II (see Figure 12.16).

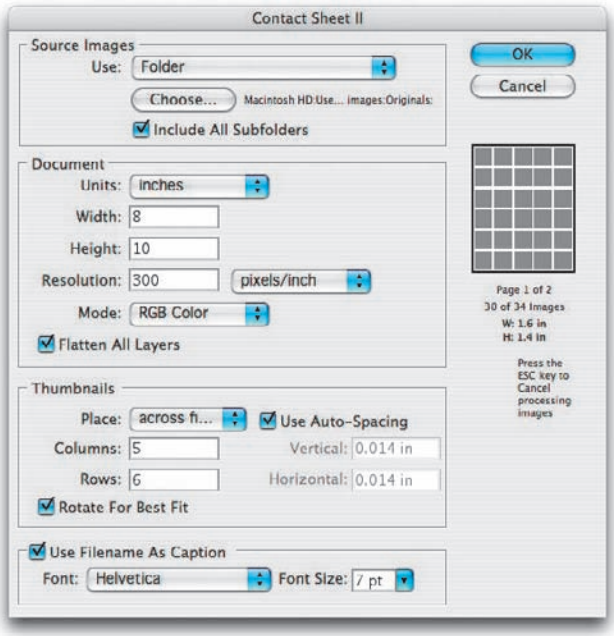


FIGURE 12.16
The Contact Sheet II dialog box

At the top of Contact Sheet II dialog box is a Source Images: Use list. The option that you choose from this list tells Photoshop where to access the images to include in the contact sheet:

- To generate a contact sheet from images that are currently open in Photoshop, choose Current Open Documents from the Source Images: Use list.
- You can also generate a contact sheet directly from Bridge. To do so, you must first select the images that you'd like to include by ⌘/Ctrl+clicking them in Bridge, and then choose Tools ➢ Photoshop ➢ Contact Sheet II. Bridge then takes you into Photoshop, where the Contact Sheet II dialog box is displayed. Photoshop automatically chooses the Selected Images From Bridge option in the Source Images: Use list.
- If the images are located in a folder somewhere on your system, select Folder from the Source Images: Use list. Note that Photoshop will include *every* image in the folder; therefore, if the folder contains additional images that you *do not* want to appear in the contact sheet, you should remove them from the folder before applying the Contact Sheet II command.

When working with a source folder, click the Choose button to open the Select Image Directory dialog box, and browse to the folder on your system. Enable the Include All Subfolders option if there are subfolders of images in the source folder that you'd like to include in the contact sheet.

In the Document section of the Contact Sheet II dialog box, specify a width, height, resolution, and mode for the contact sheet document. You should choose these settings based on how you intend to print the document after it is generated.

In the Thumbnails section, choose whether to place the thumbnails horizontally or vertically from the Place list. Specify the number of columns and rows in the fields provided.

To add filenames as captions, enable the Use Filename As Caption option located at the bottom of the Contact Sheet II dialog box. You can specify a font and size to use from the lists provided. You should definitely include filenames when creating a contact sheet. Doing so makes it much easier to locate the images that you decide to work with in your print layout. The downside to this is that when including filenames as captions, Photoshop generates smaller image thumbnails to accommodate for the added text. Additionally, Photoshop does not like long filenames and truncates them as a result. To make this less of a problem, choose a smaller font size for the captions.

After all the contact sheet information is entered in the Contact Sheet II dialog box, click OK to generate the document (see Figure 12.17). Note that the more images you choose to include in the document, the longer it takes to generate. If you happened to choose more images than will fit on a single page when using the Document and Thumbnails settings specified, Photoshop generates as many documents as necessary to display them all.

Creating Droplets

A *droplet* is a mini application that can play Photoshop actions. The benefit to using droplets is that they allow you to apply batch actions without having to open the Batch dialog box in Photoshop. Droplets can be placed anywhere on your system. All you have to do is drag and drop a file (or folder of files) onto a droplet icon and—presto! The action is applied.

FIGURE 12.17
An example contact sheet, displaying catalog image thumbnails

To create a droplet, choose File ➢ Automate ➢ Create Droplet. Doing so displays the Create Droplet dialog box (see Figure 12.18). Click the Choose button at the top of the dialog box and browse to the system location where you'd like the droplet saved (I usually choose the Desktop). Be sure to give the droplet a descriptive name before clicking Save.

From the Set pop-up list, choose which action set (of the currently loaded sets in the Actions palette) that you'd like to select an action from. Then from the Action list, choose the action you'd like to apply to the droplet.

The rest of the dialog box is set up exactly like the Batch dialog box. Proceed to enter the same settings as you would when setting up a batch action (see the "Using Batch Automation" section earlier in this chapter). After you've finished applying the droplet settings, click OK. Photoshop creates the droplet and places it in the specified location.

To run the action, simply drag and drop a file (or folder of files) onto the droplet icon. If Photoshop is not already launched, the droplet will launch it for you.

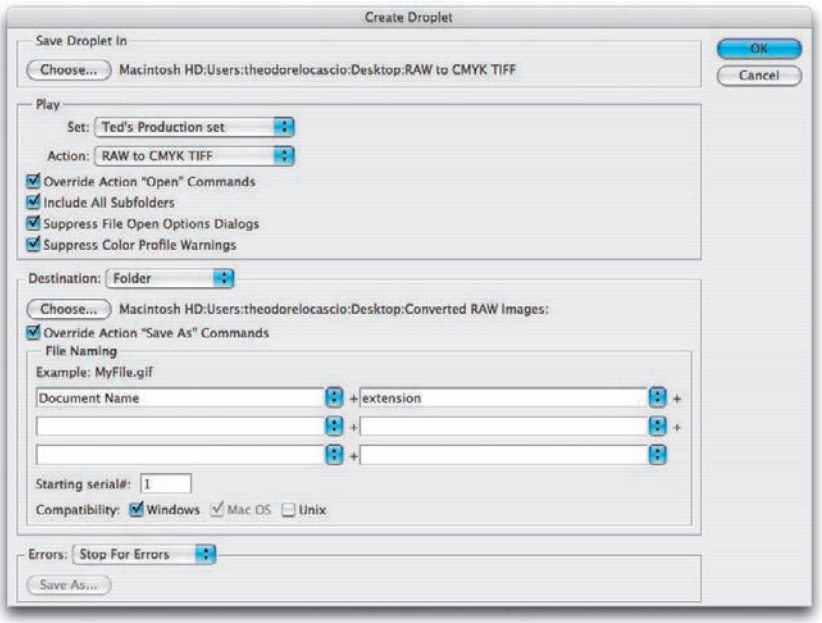


FIGURE 12.18
The Create Droplet dialog box is similar to the Batch dialog box.

The Bottom Line

Record and Apply Actions An action is a recorded sequence of events that takes place in Photoshop. Whenever you play an action, all the recorded events are reenacted in order.

> **Master It** The first thing to keep in mind when recording actions is that the task you're attempting to automate must be entirely methodical. To make the most out of actions in a print design/production workflow, it's best to keep them as simple and generic as possible. It helps to do a test run first. For more-involved actions, I suggest mapping out your steps on a piece of paper before recording.

Batch-Process an Action One of the most powerful ways to automate Photoshop is to apply the Batch command. Doing so allows you to run an action on a group of images all at once.

> **Master It** To access the Batch dialog box from Photoshop, choose File ➢ Automate ➢ Batch. From the Set pop-up list at the top of the dialog box, choose which action set (of the currently loaded sets in the Actions palette) that you'd like to select an action from. Then from the Action list, choose the action you'd like to apply to the images.

Automatically Crop and Straighten Photos Crop And Straighten Photos is another great Photoshop feature that you can use to perform one of the most mind-numbing production tasks.

> **Master It** Gang-scan a group of photos over a solid-color background into Photoshop (place multiple photos on a flatbed scanner and scan them all at once). Make sure to leave at least 1/8″ of space between them.

Create a Contact Sheet The Contact Sheet II command automatically generates a thumbnail preview document. This feature can be helpful when trying to decide which images to use in a print layout.

Master It To access the Contact Sheet II dialog box, choose File ➢ Automate ➢ Contact Sheet II.

Chapter 13

Saving, Printing, and Output

You can output your Photoshop images in several ways. If you are printing in a commercial print environment, you will typically be saving your Photoshop images in a print-friendly format, such as TIFF, EPS, or PDF, that you will then place in a print-savvy application such as InDesign or QuarkXPress. You can also print directly from Photoshop, which you will commonly do if you are proofing individual images, or if your final print output device is a photo-quality ink-jet or other high-quality device.

You will want to know your final output device well in advance so you can plan how to handle your images. Most important, your method of printing and the final output device that you use will determine the color space in which you will ultimately save your images. In some cases, you may need to create multiple versions of your image. For instance, if you are printing your final images on a commercial printing press, you will convert your images to CMYK prior to printing. Alternatively, if you are printing to a seven- or eight-color ink-jet as your final device, you will want to keep your images in RGB color space and allow the RIP or printer driver to perform the gamut conversion during the printing process.

In this chapter, you will learn to:

- Choose the proper file formats and simplify your print images
- Print from Photoshop to a high-quality ink-jet printer or proofing device
- Create a soft proof
- Convert finalized print images from RGB to CMYK

Choosing File Formats

To start out, you'll learn how to save your image in various file formats and explore the characteristics and best uses for all the standard print formats. Which format you choose can make a big difference in how compatible your images are for various types of output, and your final image quality.

In many circumstances, you will ultimately print your final Photoshop file through another application—a page layout program such as InDesign or QuarkXPress, or a distribute-and-print application such as Acrobat. In these cases, when you are not printing from Photoshop, you will want to save your Photoshop image in a file format that is best suited or optimized for that purpose. And if you are printing to a high-resolution color-separation-oriented PostScript device, you will want to choose your file format carefully.

There are more than 400 graphic file formats from which to choose, each with its own acronym: TIFF, EPS, DCS, PDF, PSD, JPEG, WMF, BMP, SWF, PNG, and more. This alphabet soup can be a bit daunting to say the least. Here is a helpful way to think about file formats: *file formats* are simply containers into which we place and store graphic file contents. There are only two types of

graphic file contents: pixels and vectors. In Photoshop we most commonly work with pixels, but we can add in a vector now and then when want to have a nice hard edge. File formats are the containers in which we keep these pixels and vectors.

File formats are created for various uses, some specific and some more general. For instance, Shockwave format is used for animation to be played in Flash-based media. There are also some specific content-to-use file format matches; for example, vector-only content (such as an Illustrator vector logo image) to be printed in a PostScript environment should always be saved in an EPS file format container.

Most of the 400 formats do not print worth a hoot in a PostScript-based printing environment. After you have created your Photoshop images, you will want to save your image in a file format that is compatible and useful for printing. In the early days of PostScript printing, only two file formats were acceptable—TIFF and EPS—and except for the simplest of files, EPS was often the preferred file format. Photoshop native format files (PSD) could not even be recognized by or placed in a page layout document page, never mind printed. Today there are a greater number of acceptable file formats and a more complex decision-making process for selecting the most appropriate one for output.

In Photoshop we have four graphic file format containers that are made with PostScript printing in mind: TIFF, EPS, PDF, and PSD. The first three are the most optimized for PostScript printing.

The file formats you can use in commercial printing are TIFF, EPS, DCS, PDF, and PSD. Which of these file formats you choose will depend on your editing needs and workflow, and on your color separation requirements. Later in this section you will find an in-depth look at each of these formats and have a chance to practice creating each one.

You will notice that many common graphic file formats are not included in this list—file formats such as JPEG, WMF, BMP, SWF, and PNG. These and many other graphic file formats are not PostScript print-oriented file formats. They have not been optimized, or even intended for use, in PostScript printing or PDF workflow and printing. PostScript and PDF workflows and printing employ the use of RIPs (Raster Image Processors), which are optimized to receive and process into printable images certain types of file formats.

If used in a PostScript/PDF printing environment, these graphic file formats may not print at all or may yield low-quality or unpredictable results. The JPEG format is so common that I will cover it later in this chapter. Even though I don't recommend its use, you will inevitably encounter it and should know how to handle it.

Table 13.1 is a review of all the file formats covered in this chapter.

Table 13.1: File Format Characteristics and Usage

Format Type	Name	Characteristics and Usage
TIFF	Tagged Image File Format	RGB and CMYK colors. Can contain layers, channels, and so forth, but best used for flattened simplified images. Simple open file format, good for cross-platform applications as well as printing. Although lossless compression saves some file size, best/simplest output practice does not recommended compression for printing. Note: CMYK color space versions recommend for most commercial print applications. RGB version should only be used if client and printer agree that RGB to CMYK conversion will be accomplished by the printer and/or at the RIP.

Table 13.1: File Format Characteristics and Usage *(continued)*

Format Type	Name	Characteristics and Usage
EPS	Encapsulated PostScript	RGB, CMYK , and multitonal colors. Use for duotones and sometimes when images contain clipping paths. Not good for images with editable type and other layers, because all type is rasterized when opened. Lossless and lossy compression options. Again compression, and especially lossy compression, is not recommended for best practice high-quality printing. Note: See color space note under TIFF above.
DCS 2.0	Desktop Color Separations	Used for separating five or more colors from Photoshop. DCS 1.0 will preseparate only four colors, usually CMYK. Again lossless and lossy compression options are not recommended for best-practice high-quality printing.
PDF	Portable Document Format	RGB and CMYK colors. Can be used much like a TIFF, but with many more options for compression and downsampling. This is a good format to use to exchange images cross-platform with others who might not have (or know how to use) Photoshop or another image-editing program. Note: See color space note under TIFF above.
PSD	Photoshop Document	RGB and CMYK colors plus layers, masks, editable type, vectors, and alpha channels. Used to maintain editability through page layout. No compression options—none needed or wanted! Can be used for output, and especially in a PDF workflow, to maintain layers, transparency and editability further into the workflow. But doing so also increases the complexity of the images and the opportunity for complications during output. Note: I recommend consulting your printing company prior to submitting .psd images to discuss options, and also sending in test files.
JPEG	Joint Photographic Experts Group	RGB and CMYK colors. Always applies lossy compression. Not recommended for highest-quality printing. If used, use only at the highest-quality settings.

Color Space, Gamut Conversion, Inks, and Proofs

Images are captured in RGB color space with a scanner or digital camera. When you output to devices such as monitors or projectors or for use on websites, your images will remain in an RGB color space and gamut (range of reproducible colors). But when you print your images, they must be converted to a print-oriented color space and gamut. Historically, this color space and gamut has been a four-color process (CMYK—cyan, magenta, yellow, and black), and remains so for the majority of commercial printing. Expanded gamut commercial printing with inks in addition to the standard four is available but not widely used. In recent years, expanded gamut printing with seven or eight inks (including cyan, magenta, yellow, and black, plus light cyan, light magenta, and various versions of black ink) has become the norm for high-quality, photo-quality ink-jet printing. While it is most common for clients to perform the RGB to CMYK conversion prior to submitting final documents and images, there are some circumstances, such as when printing with expanded gamut inks, or if the client and printer agree that the printing company should perform the conversion, when images will be submitted in a RGB color space.

This is a good time to say a word about proofs. There are basically two types: composition and contract proofs. Composition proofs simply show the content or composition of the image. Contract proofs promise a "match" of the color that you see. For our discussion here, we are focusing on contract proofs. While only proofs actually created in the final output device, such as a digital press, can truly offer a match, proofing technologies, and even soft proofing, have capabilities have dramatically improved in recent years. However, color management and proofing capabilities vary widely from one printing company to another, so the type and "closeness" of the match of the proof should be discussed. While usually it is the printing company providing their client the contract proof for approval, some fully color savvy and managed clients, such as photographers, may be the ones providing the print company with the proof to match. Who is creating what kind of proof and what kind of match is expected should be discussed and clear prior to job submission. Clarity on these responsibilities and expectations will produce better results and less finger pointing later.

One final proof point: Some image such as duotones cannot be proofed accurately, because the final printing ink is not available in proofing devices.

Gamut conversion for these expanded gamut many ink devices is too complicated and device specific to be accomplished prior to output, and is nearly always performed on the fly either at a RIP or through a printer driver. Unlike for RGB to CMYK conversions, Photoshop does not provide any color profiles for accomplishing RGB to 6-8 color gamut conversions. There are no standard inksets, paper or output conditions that can be used to create useful profiles, and each expanded gamut circumstance requires a custom conversion. So you will want to keep in mind whether you want to keep your image in RGB color space or convert it to CMYK or another color gamut for commercial printing.

Although you can leave your image in RGB color space and allow the printing company to perform the conversion to CMYK for you, you may achieve better (and less expensive) results if you perform the conversion yourself, and particularly if your are creating and providing a contract proof for matching purposes. Where and when these color space conversions and proofing will occur and who should perform them is still a topic that should be discussed between client and printing company. A glimpse at the future: It is this author's opinion that, for reasons related to image use flexibility and editability, submission of RGB color space images will become increasingly common and will ultimately become the standard practice. So it is a good idea to keep this dialog open between client and printing company, and always be clear who has responsibility for color gamut conversion and who will be providing what kind of contract proofs.

TIFF File Format

I have placed TIFF at the top of our list because it is perhaps the simplest and therefore most flexible and dependable high-quality pixel-based file format for printing. The TIFF format is *open*, meaning that its contents are readily available. In contrast, EPS files are closed or sealed. This is an important distinction. When you place a TIFF image into an InDesign or QuarkXPress document, you can apply some image corrections such as brightness and contrast and even colorizing the contents of that TIFF file through the application's menu controls. This is not possible with an EPS file because it is sealed or encapsulated, as the name indicates. Although many, including me, will debate the wisdom of editing pixel-based images through page layout applications such as InDesign or QuarkXPress, the open nature of the TIFF format makes this possible.

Note: While adjusting TIFF images directly in InDesign or QuarkXPress is indeed possible, I recommend performing these and other edits directly in Photoshop. Luckily, you can easily open your placed images in Photoshop by using the context sensitive pop-up menu (see below). The main point here is that TIFF is a very open, accessible, and flexible file format.

Editing TIFFs in Page Layout

Because of its open nature, you can indeed apply edits, such as brightness, contrast, and even colorizing, to TIFF-based pixel images in InDesign and QuarkXPress. I prefer to open my images in Photoshop and perform my editing there. See the "Photoshop (PSD) File Format" section later in this chapter to learn how to access placed images, regardless of format, in InDesign and QuarkXPress.

The simple, open nature of the TIFF format container makes TIFF a good choice for taking images cross-platform, from Mac to Windows to Unix and back again. TIFF images will print on just about any printer on any platform. Also, because of its simple open nature, TIFF is one of the smallest high-quality file formats in terms of file size. For instance, when you resave a TIFF image as an EPS, its file size will typically increase by about 30%. So unless you need to use EPS for a specific purpose (you will find out what these are later), TIFF is generally a better choice.

In the early days of PostScript, the TIFF file format was simpler than it is today—and sometimes I long for those simpler times. Earlier versions of TIFF accepted only pixel-based image content. So if you added editable vector-based type to a Photoshop image and then saved it out as a TIFF, the type was automatically rasterized (converted to pixels). Creating a TIFF automatically simplified your file by rasterizing all the content, thereby making it much easier to print—early TIFFs, the printer's friend!

Current versions of TIFF are still smaller, simpler, and more open than other high-quality graphic file formats, but they are also more tolerant of the contents they will accept. You can now save layers, editable type, vectors, and both pixel and vector masks—just about all the same content you can save in a PSD file—in TIFF format images. Although this certainly has its advantages in terms of maintaining the editablity of the image, having all those components can really increase the complexity of the file. Plus, although a TIFF can hold most of what a PSD can, you do not have the flexibility of access to those contents as you do with a PSD file. For instance, although you can certainly place a layered TIFF file in an InDesign or QuarkXPress document, you cannot access its contents through InDesign or QuarkXPress as you can with a PSD file. You can access that content only through Photoshop (see the discussion of PSD files later in this chapter for more info on this topic).

So here is my take on TIFFs. Unless you need to store layers, masks, and vectors in a TIFF, save files that have these components in PSD format. Reserve TIFF format for flattened, simplified files you want to print. See my riff in the "File Formats and Workflow" section later in this chapter for more info on this topic.

Saving Simplified Images in TIFF Format

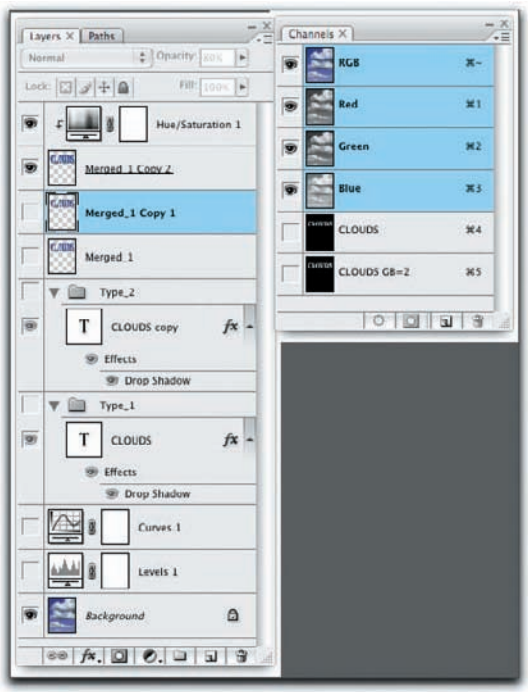
Okay, so now let's go through the steps for creating a simplified, flattened TIFF:

1. Open the Clouds_RGB_300_1 image (Figure 13.1) from the companion CD.

Figure 13.1
Multilayered and channeled Clouds image

2. Access Photoshop CS3's Layers and Channels palettes (by choosing Window ➢ Layers or pressing F7).
3. Click the Channels tab and drag it out of the group so you can see the Layers and Channels palettes simultaneously side by side (Figure 13.2).

FIGURE 13.2
Multiple layers and alpha channels



4. Now, you could manually flatten your image and remove alpha channels, but this takes way too long! Instead, check to make sure your image is just the way you want it, with the layers you want active visible, and those you don't want active invisible.
5. To save a simplified TIFF version of this image, choose File ➢ Save As. The Save As dialog box appears (Figure 13.3).
6. Configure this Save As dialog box in the following manner:
   - From the dialog's Format menu, select TIFF.
   - Deselect both the Layers and Alpha Channels check boxes. This will automatically select the As A Copy check box. This will force a copy to be made, leaving the original multilayered and multi-alpha channeled file intact.
   - Select the Embed Color Profile check box if you want to include your color profile for this image. Note: If you are saving a final CMYK file for commercial printing, many printing companies prefer that you do not save color profiles with your final print images. Ask your prepress manager's preference. When in doubt, save the profile, because it can always be stripped out later.
   - Select the Image Previews you would like to include, typically the Icon, Mac, and Windows check boxes. This will provide you with cross-platform preview visibility of your image.
   - Choose the location where you want your image saved. If you are saving a final CMYK image to place in a document, I suggest placing this image in the same folder as the page layout document in which you intend to place this image. This will facilitate relinking of this image each time you open the document after you place the image.

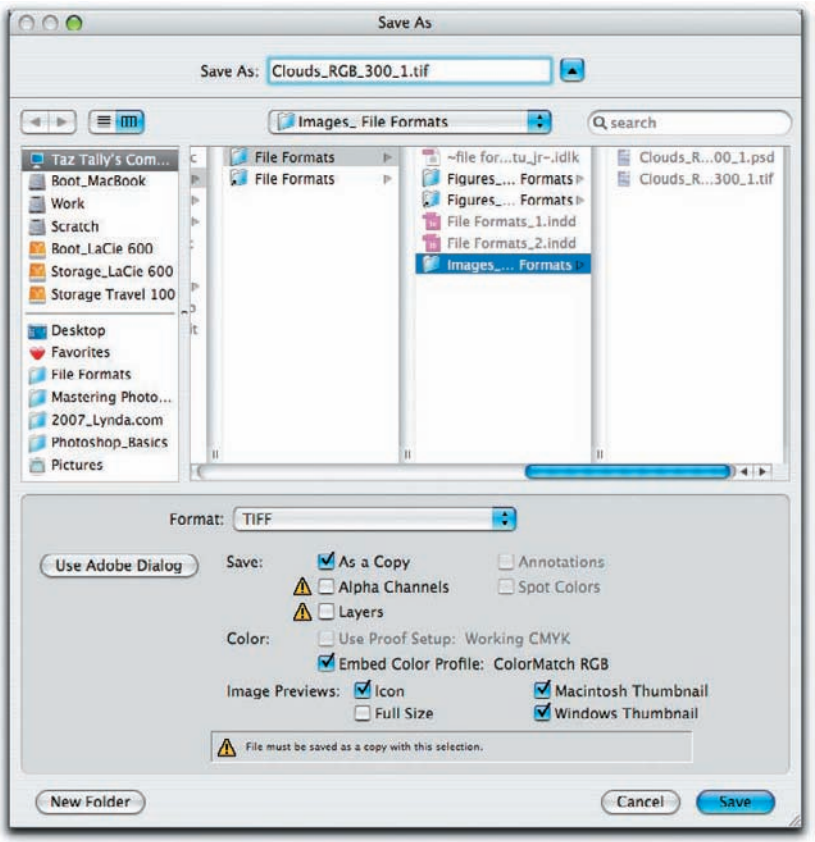


FIGURE 13.3
The Save As dialog box set up to create a simplified TIFF

7. Click Save. The TIFF Options dialog box appears (Figure 13.4).

   Configure this dialog as follows:

   - Select the None radio button in the Image Compression section. This will prevent any compression from being applied to your image. Selecting either the LZW or ZIP options will apply lossless compression to your images. This will not result in any data loss (unlike applying JPEG type of lossy compression). And while most modern RIPs can handle LZW compression just fine, using LZW compression may make the image more difficult to process/RIP during printing, so I do not recommend applying any compression—simple is better. Ask your printing company for clarification if you would like to save some file space by using LZW compression!
   - Leave the Pixel Order set on the default Interleaved (RGBRGB) setting.
   - In the Byte Order section, click the IBM PC radio button. This will create a cross-platform compatible version of your TIFF. Macs can read either byte order; Windows computers prefer the IBM PC byte order. All this affects is the order in which the image data is written to the disk.

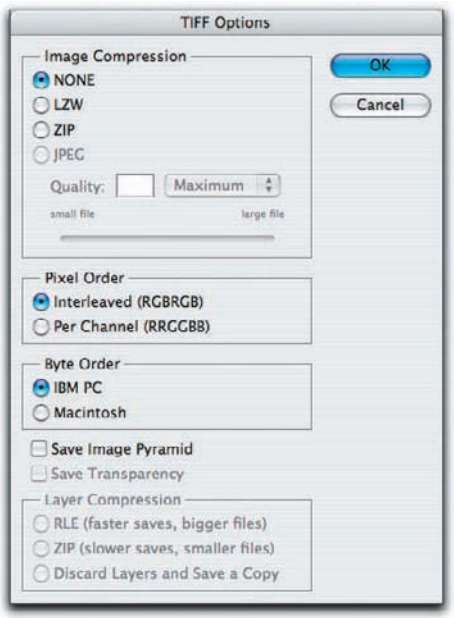


FIGURE 13.4
The TIFF Options dialog box set up to create a simplified TIFF

This will save a simplified cross-platform compatible copy of this image in TIFF format in which all the layers are flattened and all the alpha channels are removed. If you compare the file sizes of your starting PSD file with your simplified TIFF, you will see quite a difference. You can check the Document Sizes numbers located at the lower-left corner of your PSD file; a PSD image such as this one, needing 19.2MB, can produce a TIFF image at 3.9MB.

AUTOMATING TIFF CREATION

This simplified TIFF creation process you have just completed can be automated by recording this Save As process as a Photoshop action (see Chapter 12, "Automation," for more information on creating actions). This action can be applied to individual images through Photoshop and can be applied to as many images as you like by using batch automation through Adobe Bridge (see Chapter 11, "Integration," for specific instructions on using batch automation in conjunction with actions via the Bridge).

EPS File Format

EPS used to be a more widely used file format for pixel-based images in addition to its previous and current use for saving vector images out of Illustrator. Many early RIPs preferred the EPS file format even though it is larger in file size than TIFF. Any clipping paths or other vector-based contents such as type had to be saved in EPS format because early versions of TIFFs did not support clipping paths or vectors. But with the new TIFFs' flexibility and smaller file sizes, EPS files are used mostly now for these purposes:

- Saving vector-based images, such as vector logos, out of Illustrator.
- Saving multitonal pixel-based images, such as duotones, out of Photoshop. Currently only EPS is equipped to store the multitonal transfer functions that control the ink densities on output.

- To save separated pixel-based spot colors as special-version EPS format DCS 2.0 (covered in the next section).
- To save an image so that it cannot be altered (downsampled or compressed) during other production processes such as normalization/distilling to create PDFs. For example, I use EPS to protect my low-resolution, low-bit-depth screen grabs from downsampling and compression.
- Some RIPs still prefer to process EPS files. But in this case, EPS is mostly used to save whole pages out for RIPping and imposition, and is not used for saving individual pixel-based images out of Photoshop.

Saving Layers and Editable Type EPS Files

Yes, it is possible to save and print editable vector-based type in the Photoshop EPS file format. The problem is that if you attempt to open an EPS file with editable type in Photoshop, the opening process will rasterize the type. Typically, you are better served saving editable type in the TIFF or PSD file formats.

Saving Duotones in EPS Format

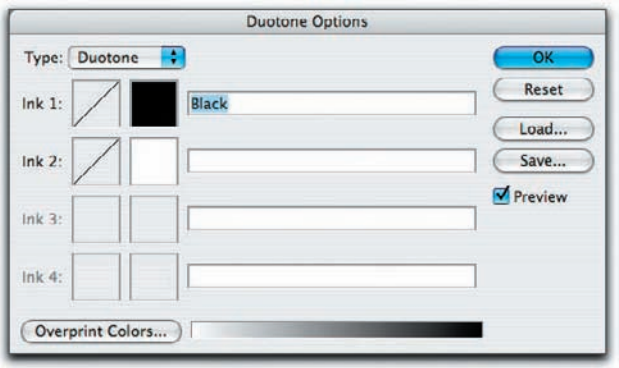
Your most common need for saving Photoshop images as EPS (not DCS) files is to save multitonal images to be placed in a layout, so let's cover that here:

1. Open the Barn_GS_300 image from the companion CD (Figure 13.5). Note: Start with a grayscale image the highest quality possible, as this will improve the final results of your duotone.

Figure 13.5
Starting Barn image

2. Choose Image ➢ Duplicate to create a copy of this image. Name this duplicate image **Barn_Duotone_300**.
3. Select Image ➢ Mode ➢ Duotone. The Duotone Options dialog box appears.
4. Select Duotone from the Type menu (Figure 13.6).

FIGURE 13.6
Initial Duotone Options dialog box

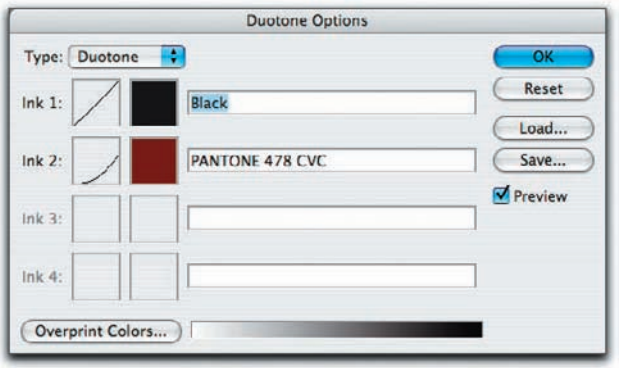


5. Click the Load button on the right side of the dialog box. Browse to the `Pantone 478 Brown 100% bl 1` duotone file in Photoshop's duotone folder:

```
Mac: Photoshop CS3/Presets/Duotones/Pantone Duotones
Windows: \Adobe Photoshop CS3\Presets\Duotones\Duotones\PANTONE(R) Duotones
```

6. Click the Load button. This loads this Pantone color and two ink-density control curves (one for the black ink and one for the Pantone spot color ink) into the Duotone Options dialog (Figure 13.7).

FIGURE 13.7
Configured Duotone Options dialog box

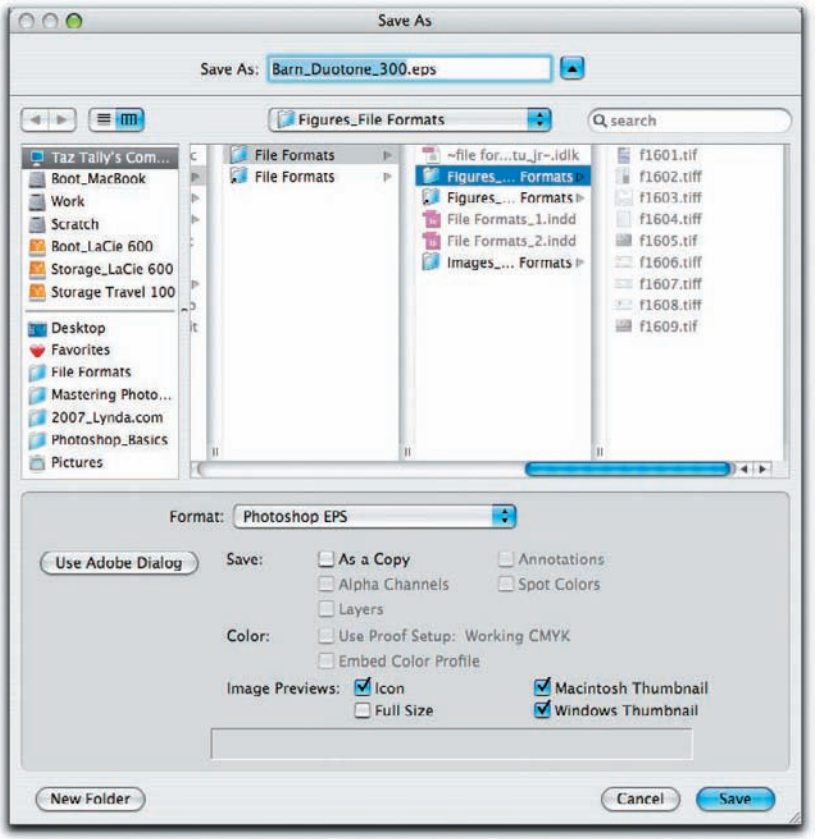


Note: Loading this duotone file loads not only the second ink, but critical ink control curves as well. Click once on each of the two graph windows to view the ink control curves to see how the original black ink has been reduced and replaced with the second ink.

7. Click the OK button. Your new duotone image appears onscreen.

8. Choose File ➢ Save. The Save dialog box appears (Figure 13.8).

FIGURE 13.8
Save As EPS dialog box



9. From the Format menu, select Photoshop EPS. From the Image Previews area, select the Icon, Macintosh Thumbnail, and Windows Thumbnail check boxes. These settings will help you create an EPS format file that is visible on both Mac and Window platforms.

10. Click the Save button; the EPS Options dialog box appears (Figure 13.9).

    Configure this dialog box as follows:

    - From the Preview menu, select the preview that matches your computer platform. The 8-bit Mac option will usually work fine for sending to most printing companies. If you are working in Windows or think this image may go cross-platform, choose 8-bit TIFF. Be sure that None is *not* selected here, because you must create a preview for your EPS image to display when you place it in a page layout document.

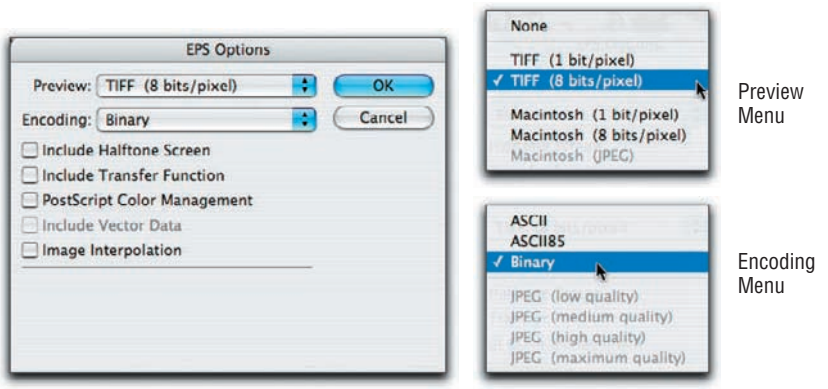


FIGURE 13.9
EPS Options dialog box

EPS PREVIEWS

Unlike TIFF images, whose format container is open, EPS format images are, as the name *Encapsulated* indicates, sealed. Page layout applications can reach into a TIFF and generate a preview image on the fly to display on its page. With an EPS, because it is sealed, you must provide a preview for your page layout application to use when this EPS is placed in a document page. Without an EPS-provided preview, you will see only a gray box when the image is placed on a page.

- From the Encoding menu, select Binary. Binary files are smaller than ASCII files and will process and print faster. ASCII should be used only on networks that are not compatible with binary data. Most printing companies prefer binary data. If you ever receive a network error message about binary data when printing, and your duotone will not print, you can re-create your duotone with ASCII encoding
- Most printing companies will ask that you leave all the check boxes unselected, but most important, make sure the Include Halftone Screen is unselected. The halftone screen should be determined at the printing company's RIP. Including the halftone screen here will embed the default Photoshop line screen of 53lpi. Because it is sealed in the EPS container, it may well override the line screen of 150–200 that will be used at the printing company. In some cases, your printing company may want you to include the Transfer function; you can ask about this option, but the default procedure is to not include it.

11. When you are finished, click the OK button to create your EPS duotone.

Proofing Duotones and Test Prints

Duotones, and other multitone images that involve the printing of multiple inks whose densities are controlled by complex ink curves, are notoriously difficult to proof both onscreen and on proofing devices. Duotones typically print darker, and often much darker, than they appear onscreen. And printing duotones to a color printer such as an ink-jet does not provide much accurate proofing help, because these printers must use CMY inks to try to simulate the effect of a spot color.

The only way to proof a duotone image is to actually print it. This is one of the key reasons I had you load preset curves in the previous example rather than making your own. The preset duotone curves that come with Photoshop are well tested and are excellent starting points for creating and printing duotones. I suggest that you send test prints to your printing company and have them take a look at it. They may even be able to print a proof of your image on the side of someone else's job who is using a similar spot color.

DCS 2.0 File Format

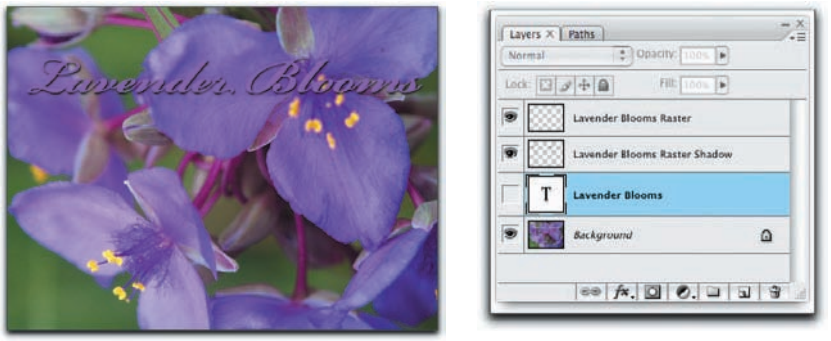
Desktop Color Separations (DCS) is a special preseparated version of EPS. Unlike TIFF and standard EPS format files, which have all their colors combined in their file format containers, DCS files save their color information already preseparated. In the early days of desktop publishing and PostScript printing, we used DCS format images to help speed up the RIP and printing process. This was back when we were using 25MHz computers that required six hours to process a 40MB image! With today's more-powerful computers and RIPs, we no longer are required to use DCS format to help us meet production deadlines. However, we do need to use DCS 2.0 for printing separated spot colors from Photoshop.

Saving Spot Colors in DCS 2.0 Format

There are two versions of DCS: DCS 1.0 and DCS 2.0. DCS 1.0 will separate only four colors, usually CMY and K. DCS 2.0 will separate the four process colors plus as many spot colors as you want to pay for! So when separating CMYK and spot colors from Photoshop, you will use DCS 2.0.

1. From the companion CD, open the image Lavender Blooms_CMYK_300.
2. Duplicate this image (Image ➢ Duplicate) and name the new image **`Lavender Blooms_CMYK_2577_300.eps`**.
3. Make a copy of this original type layer and hide it (turn off its visibility), so you can return to this original editable layer later if you want to. This editable type layer can be saved in your PSD file and discarded when you create your final output image version.
4. Using your Type tool, set the type **Lavender Blooms**. Apply an initial color to the type if you like, and then rasterize the type layer. Now add a separate black type drop shadow layer (Figure 13.10).

FIGURE 13.10
Flower with type and drop shadow

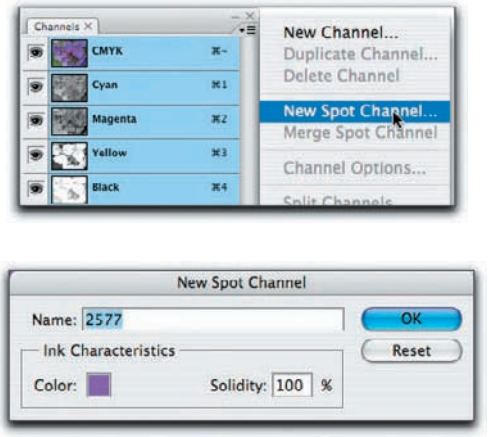


5. Make a selection of the type by ⌘/Ctrl+clicking the type layer in the Layers palette (Figure 13.11).

FIGURE 13.11
Selected type

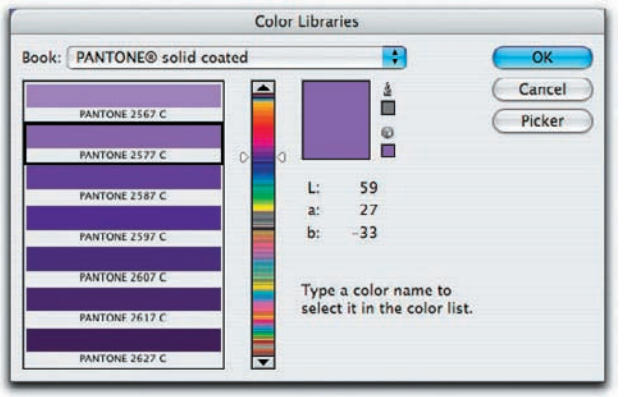
6. Now, with your type still selected, activate the Channels palette. Click the Channels palette menu and choose New Spot Channel. A New Spot Channel dialog box appears (Figure 13.12).

FIGURE 13.12
Creating a new spot channel



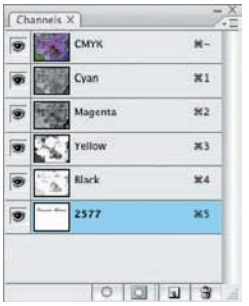
7. Set the Solidity to 100%. This will allow you to view your simulated spot color onscreen at 100% opacity.
8. Click the Color square to activate the Color Picker dialog box, and then click Color Libraries so the Color Libraries dialog box appears.
9. From the Book menu, select Pantone Solid Coated (Figure 13.13). Then type **2577** to select that numbered spot color.

FIGURE 13.13
Color libraries



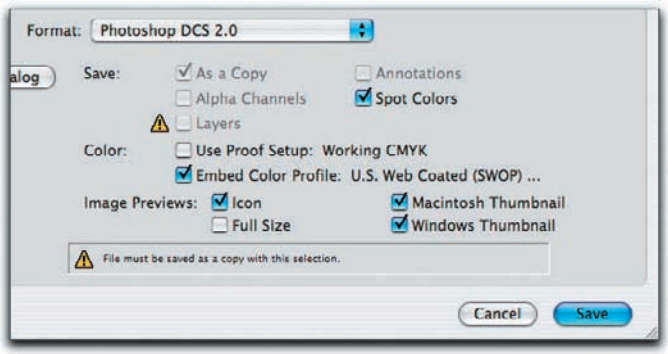
10. Click OK twice to return to the Channels palette (Figure 13.14) to view your new spot color channel and see how it is applied to your selected type.

FIGURE 13.14
Spot channel view



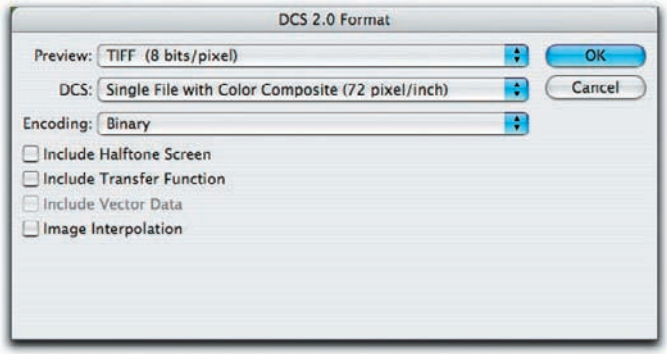
11. Choose File ➢ Save As to activate the Save As dialog box. From the Format menu, choose Photoshop DCS 2.0 (required for 5+ colors) (Figure 13.15). The Layers check box should automatically be deselected when you select DCS 2.0. This will create a new, flattened, simplified file. Your hidden editable type layer will be removed from the final DCS but preserved in the original PSD working file.

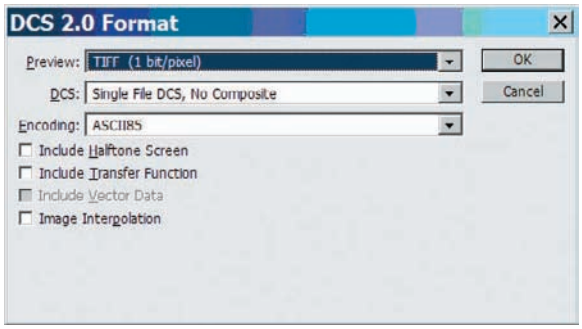
FIGURE 13.15
Save As DCS 2.0 dialog box



12. Click the Save button. The DCS 2.0 Format dialog box appears (Figure 13.16).

FIGURE 13.16
DCS 2.0 Format dialog box





Configure this dialog box as follows:

- From the Preview menu, select the 8-bit preview for your platform or choose 8-bit TIFF to provide cross-platform compatibility.
- From the DCS menu (a very confusing menu with all those choices), select Single File With Color Composite. This will create a single file with all the separated colors in that

one file. This will also create a color preview file that will be placed and used to provide an onscreen preview of your image when you place it in your page layout document.

- From the Encoding menu, choose Binary.
- Leave the other check boxes—especially Include Halftone Screen—unselected unless your commercial printing prepress manager requests that you select them.

13. Click the OK button to create your color-separated DCS 2.0 file as an EPS image (Figure 13.17). Note that when you place this DCS/EPS into your page layout application document, the spot color—here, 2577—will be added to your color Swatches palette.

FIGURE 13.17
DCS 2.0/EPS image

HOW PHOTOSHOP SPOT COLORS PRINT

By default, spot color channels created in Photoshop will overprint on all the other color channels above them in the Channels palette. If you are printing more than one spot color from Photoshop, you can control the print order of the colors by changing their order in the Channels palette. Lower channels overprint all channels above them. If you would like the spot color to be knocked out instead of overprinted, simply make a selection of the channel object you want to knock out, activate the proper channel, and then press the Delete/Backspace key. The selection will be knocked out from all channels you have selected. Activate the individual channels to view the knockouts.

For more on spot color, see Chapter 4, "Working with Color."

PDF File Format

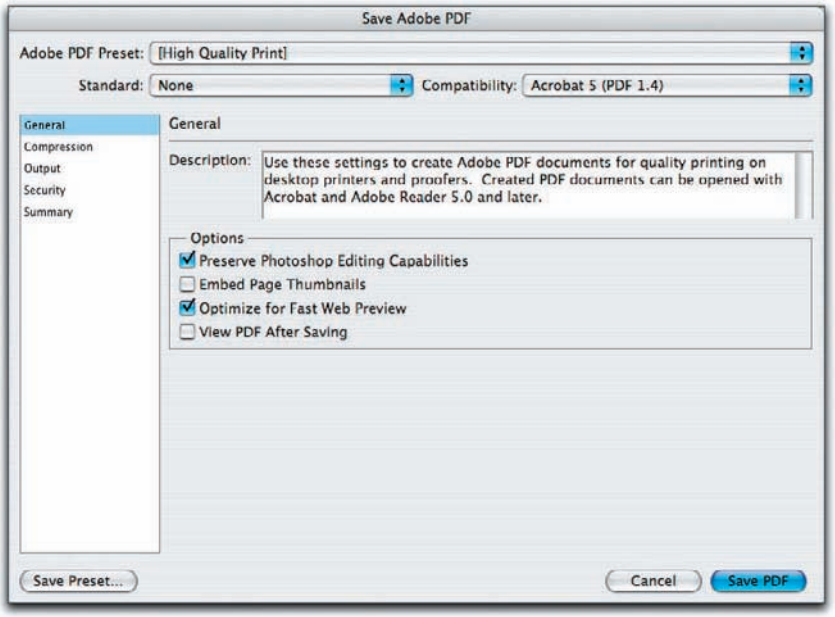
Portable Document Format (PDF) files are not as commonly used as TIFF or EPS for creating individual images that will be placed in page layout documents. However, PDF images are a perfectly PostScript-compatible graphic file format. PDF is a reasonable choice for images that contain lots of elements, including type and vectors. Plus, graphics that are saved in PDF format are by their very nature cross-platform and application independent. If you want to send your image to someone who does not have Photoshop or another application that can open TIFFs or EPS files, PDF is a good solution. And rather than having two versions of an image—one to print and one to share—you can use the PDF version for both. PDF also offers the added benefits of being able to easily add security and commenting.

Perhaps the most critical point to know about saving graphic files in PDF format is that by default Photoshop will automatically apply JPEG compression (although it is high-quality compression, it is nonetheless still compression) and will downsample your images if they exceed 450ppi. You can decide what is acceptable for you. I will give you my take in the following exercise.

To practice saving an image in PDF format from Photoshop, follow these steps:

1. Open the multilayered and multichannel image Clouds_RGB_200 from the companion CD.
2. Choose File ➢ Save As. The Save As dialog box appears. To make sure your image is simplified for printing and includes all the visible layer data, first uncheck the Layers check box. This will flatten your image as the PDF is created. Then from the Format menu, choose Photoshop PDF. The Save Adobe PDF Format dialog box appears.
3. Click the Save button. The Save Adobe PDF dialog box appears (Figure 13.18). There are three panels to configure: General, Compression, and Output. Here you will configure these panels for the high-quality printing of this image on a commercial press.

FIGURE 13.18
Initial Save Adobe PDF dialog box

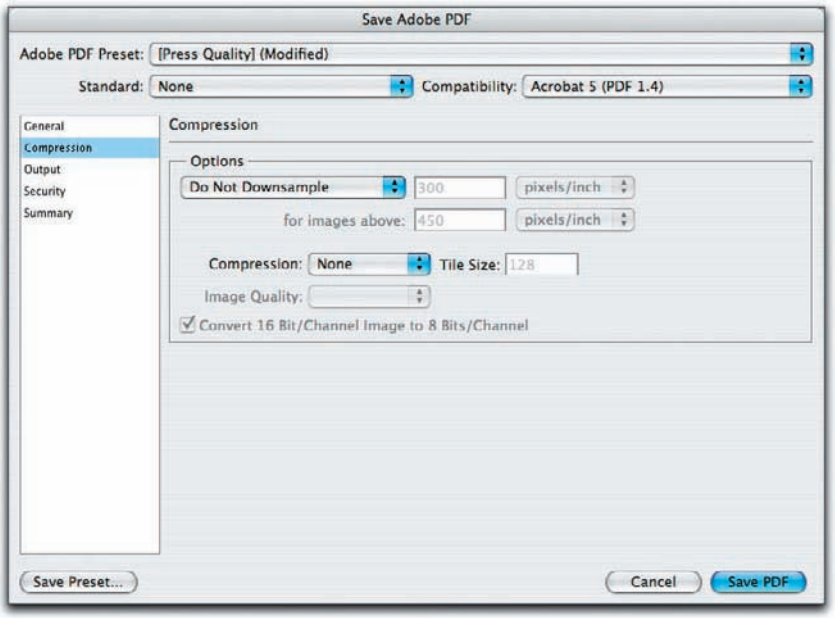


4. Configure the General panel as follows:
   - From the Adobe PDF Preset menu, select Press Quality or High Quality Print.
   - From the Standard menu, select None. Note that there are several PDF/X standard settings choices in this menu. These are a variety of standard configurations, mostly for prepress, that the printing industry uses for preparing PDFs for print. You need to select one of these only if your prepress manager requests it.

- From the Compatibility menu, select Acrobat 5 (PDF 1.4). This is the minimum PDF version that supports transparency.
- In the Options area, select the Preserve Photoshop Editing Capabilities check box if you want to be able to open this image in Photoshop and edit it.

5. Click Compression in the left-side list to activate the Compression panel (Figure 13.19). From the first menu in the Options area, choose Do Not Downsample. From the Compression menu, choose None. This will prevent any compression from being applied to your image. Note that the default setting is to apply high-quality JPEG compression—not on my images, you don't!

FIGURE 13.19
Compression panel of the Save Adobe PDF dialog box



6. Click Output in the left-side list to activate the Output panel. Configure this panel as follows:

Option 1 From the Color Conversion menu, select No Conversion (Figure 13.20) if you have already converted your image to the final color space that you intend to print with: CMYK for commercial printing, or your final version of RGB if you are printing your final image on an ink-jet device.

Option 2 From the Color Conversion menu, select Convert To Destination (Figure 13.21) if your image is not in its final color space state. For example, you would choose this option if your image is currently in an RGB color space, but you intend to print it on a CMYK commercial press.

If you have opted for option 2, then from the Destination menu select the final output device to which you will be printing: here, U.S. Web Coated (SWOP) v2.

FIGURE 13.20
Output panel option 1 of the Save Adobe PDF dialog box

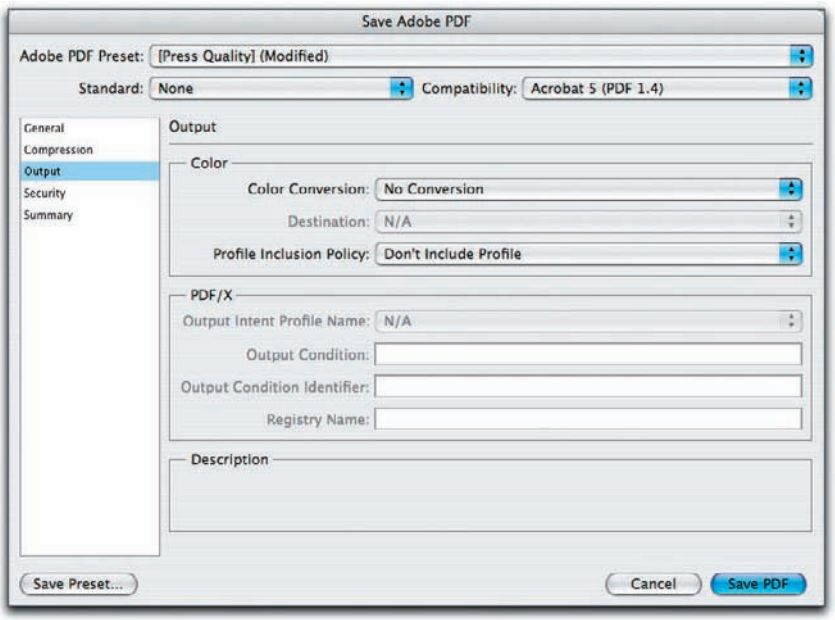
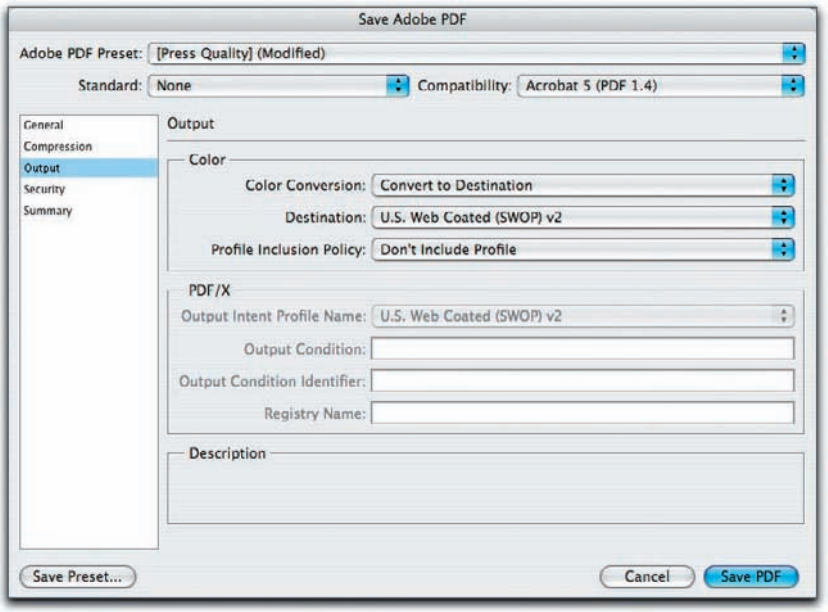


FIGURE 13.21
Output panel option 2 of the Save Adobe PDF dialog box



7. If you would like to add some password security to this image to send it to a client, click Security in the left-side list. *Do not* apply any security for final images that you intend to print.
8. To check all of your settings, click Summary in the left-side list.
9. Now before you create your PDF, click the Save Preset button in the lower-left corner of the Save Adobe PDF dialog box. Name your preset to match your output device (Figure 13.22). The next time you create a PDF image for prepress, you can select this preset from the Adobe PDF Preset menu (Figure 13.23) and avoid having to go through all these mistake-prone settings again. It is a good idea to make a preset for each type of PDF output you use.

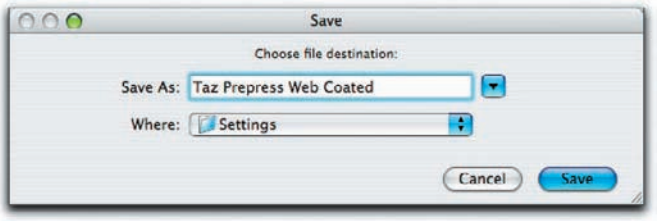


FIGURE 13.22
Save preset dialog box

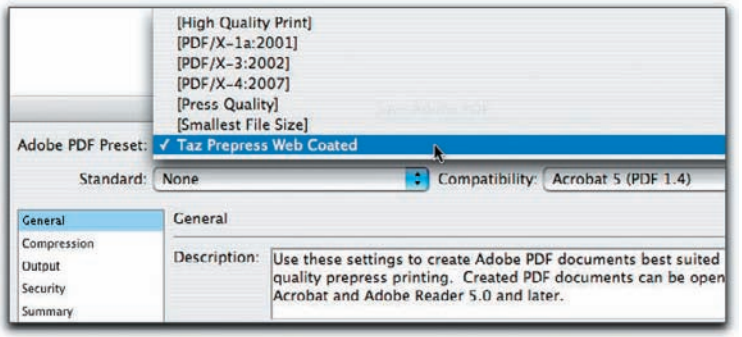


FIGURE 13.23
Adobe PDF Preset menu

Note: Placing a TIFF rather than a PDF image in a page layout document will create a simpler and easier-to-RIP document, which is generally preferred by printers who are using a PDF workflow So unless you must use a PDF image for placement, consider using a TIFF instead—our old standby for ease of RIPping!

Photoshop (PSD) File Format

I expect that most of my prepress manager friends in commercial printing will let me know, in threatening emails, that they're unhappy that I have listed native Photoshop (PSD) files as output files. Indeed, PSD files are not my first choice when it comes to creating image files that will accurately and dependably print. But the truth is that our ability to use PSD files further along into the print production workflow, and even through to the final RIP and print process, has been dramatically expanded. Whereas once our page layout programs would not even recognize a PSD file, we can now place, edit, and even print them. I think the key is to know the benefits and risks of using PSD files, and then learn to manage those risks.

The reason why prepress managers don't particularly like dealing with PSD files is their propensity for complexity. Native Photoshop files can, and often do, contain layers, layer masks, editable type, vectors, vector masks, and alpha channels with plenty of transparency.

You see, this is a good news/bad news story. The good news is that PSD files can contain all these image elements. The bad news is that PSD files can contain all these image elements. This is good news for designers and photographers who want to maintain the full editablity of their files for as long as possible. And unlike in the first two decades of PostScript printing, you can now readily place PSD images into page layout documents (InDesign and QuarkXPress), and you can also control visibility for much of this layered content from within the layout application. By having access to these layers, you can control their visibility on the fly.

The bad news is for prepress managers. The presence of all these various image components such as layers and masks dramatically increases the complexity of these files. And if all these layers and masks are not simplified (through flattening) or removed to create a simpler file, prepress managers must try to process (RIP) all this complexity into printed pages. One of the most common image-related output problems that prepress managers struggle with is trying to properly process (RIP) and faithfully render the transparency relationships between the various image file components contained within PSD and other layered files.

Having all this editing control is great from a design perspective. But understand that the more-complex the PSD image is, the more potential problems you are likely to have during output. If for design reasons you need to use PSD files in your InDesign and QuarkXPress documents, then by all means do so—that's why the capability is there. Otherwise, place simplified flattened TIFFs whenever possible. For trouble-free printing, create simplified, flattened versions of your initially placed layered PSD files before going to print. Accessing and converting your PSD images directly through InDesign and QuarkXPress is easy and fast; read on to see how!

Page Layout Acceptance of PSD File Format Images

Both InDesign and QuarkXPress 6.5 and 7 documents accept PSD file format images. However, InDesign allows for more-dependable and flexible access to them. You can place PSD files into QuarkXPress layouts and control their layer visibility only if the free third-party PSD Import XTensions software plug-in is installed. The plug-in comes installed with QuarkXPress 7, and a version for QuarkXPress 6.5 is available for download at `www.quark.com`.

One advantage to working with PSDs in InDesign over QuarkXPress is that InDesign allows you to control visibility for certain Photoshop effect layers such as type and shape layers. InDesign also gives you access to any layer comps embedded in the PSD. QuarkXPress cannot process certain PSD layer items such as clipping masks, vector masks (type and shape layers), or groups. However, QuarkXPress can interpret basic image layers and adjustment layers without any problems. When it does encounter a problem, it still allows you to place the PSD, but only in a composite form without allowing you access to the individual layers in the PSD Import palette.

Saving a Photoshop Native (PSD) File

Whenever you save an image in Photoshop format, you want to make sure it retains all of its editablity. This is indeed the primary purpose of using the Photoshop native file format: editability.

1. Open the multilayered and multichannel image Clouds_RGB_200 in Photoshop (Figure 13.24). The image and all its layers, masks, and channels will be available for viewing and editing.

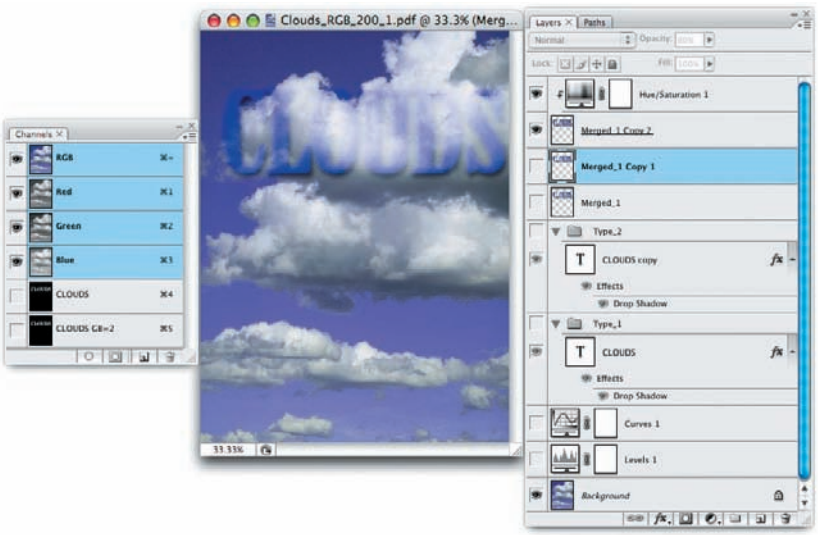


FIGURE 13.24
Multilayered channel and mask image

2. To save a complex image in PSD format with all its layers, alpha channels, and masks intact, choose File ➢ Save As. The Save As dialog box appears.
3. Configure this Save As dialog box (Figure 13.25) as follows:
   - From the Format menu, select Photoshop.
   - In the Save section, make sure both the Layers and Alpha Channels check boxes are selected.
   - Select the Embed Color Profile check box. This will make sure that the correct color rendering information is used regardless of where this image is opened.

   See my notes on Photoshop's file handling Preferences, under "File Formats and Workflow" later in this chapter, for providing maximum compatibility with future versions of Photoshop.
4. Click the Save button to create your PSD file. This will create a file that not only allows for maximum editablity in Photoshop, but can also be placed and edited in InDesign.

PLACING AND ACCESSING PSD FILES IN PAGE LAYOUT DOCUMENTS

Knowing how to place and access a native Photoshop (PSD) file in an InDesign or QuarkXPress document will allow you to take further advantage of your access to its components. You can also learn how to simplify your PSD images after you are satisfied with their content. Here is an outline of the steps you should follow to place, access, and simplify a PSD file in an InDesign or QuarkXPress document:

1. Place your PSD file in an InDesign or QuarkXPress document page.
2. Access the various image components in your PSD image file and change their visibility to suit your design needs. This can be done in InDesign by using the Object Layer Options dialog box. In QuarkXPress, you would use the PSD Import palette.

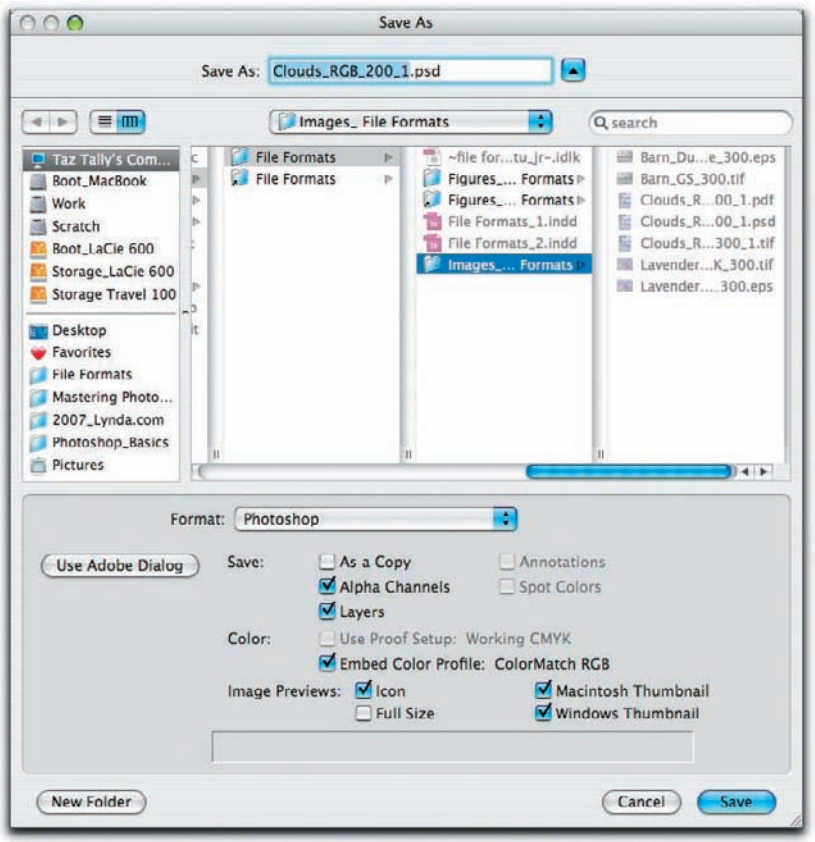


FIGURE 13.25
Save As PSD dialog box

3. After you've decided how you would like the image to print in your layout, reopen it in Photoshop and flatten the content of your PSD document. Then save a copy of it in a much simpler, easy-to-print format, such as TIFF, leaving the layered PSD file in all its editable glory.
4. Relink the new simplified TIFF to your final print document.

WORKING WITH NATIVE PHOTOSHOP FILES AND POP-UP MENUS IN INDESIGN CS3

Here is the fastest way to access the image content options (Layers, Layer Comps, color options, and the image itself) of a placed .psd image.

1. Create a new page layout document in InDesign by selecting File ➢ New ➢ Document. Enter the preferred page dimensions and orientation and click OK.
2. Place the image file Clouds_RGB_300_1 on the first document page by selecting File ➢ Place. A loaded paintbrush cursor with a small thumbnail of the image appears.
3. Place the image by clicking the cursor near the upper-left corner of the document page.

4. With either Selection tool active, Control+click (Mac), or right+click the selected image with a two-button mouse. A context-sensitive menu appears (Figure 13.26). You can select from one of three access and editing options:

   Object Layer Options Choosing this option opens the Object Layer Options dialog box, which provides you access to and control of the visibility of any layers or layer comps that are present in your image.

   Graphics This submenu allows you to locate your image through Bridge or your OS. You can also access your color profiles for assignment to your image.

   Edit Original This allows you to actually open your linked high-resolution image in Photoshop for editing and updating of the link in InDesign. It is through this avenue that you can open the linked complex PSD file, perform a Save As to create a simplified flattened TIFF (as described earlier in this chapter), and then relink to the new simplified and easier-to-print version.

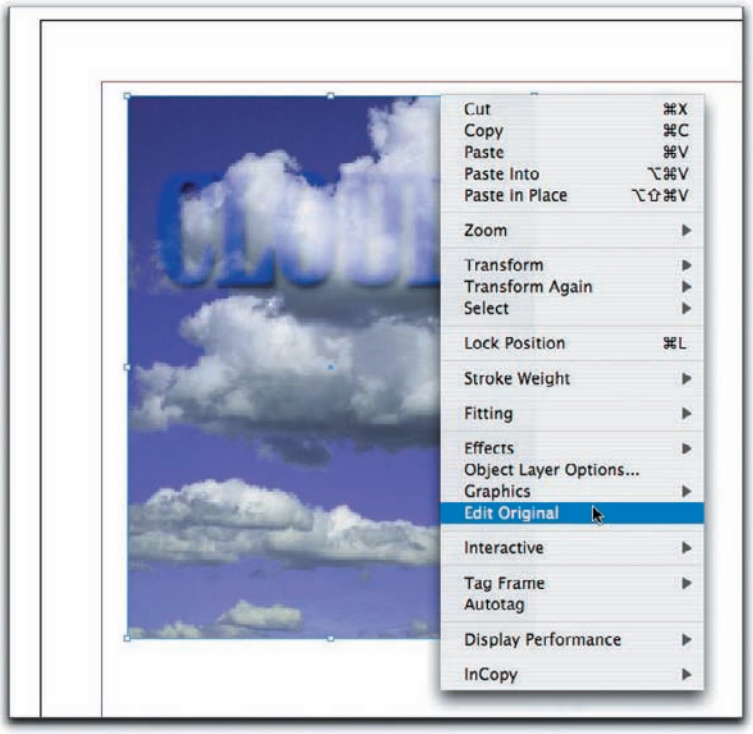


FIGURE 13.26
The InDesign pop-up menu gives you access to Photoshop image components.

This kind of access to and control of the layers of a Photoshop image are available only when placing a PSD, no matter whether it's done in InDesign or QuarkXPress. Remember, a placed PSD image can be printed, but it will increase the complexity of the printing process. Creating a simpler TIFF version will help you to sleep better. For more on this topic, please refer to the "File Formats and Workflow" section later in this chapter.

JPEG File Format

As I mentioned earlier in this chapter, JPEG format is not a preferred graphic file format for use in high-quality printing environments. This is because saving an image as a JPEG automatically applies lossy compression, which removes data from an image. But the reality is that we often receive JPEGs from a variety of sources and are expected to print them. So our guiding principle—our graphic file Hippocratic oath—is to "do no more harm." Here are a couple of good rules of engagement for working with JPEGs:

Never save a JPEG as another JPEG. If you do, you risk doubling the compression-related damage by recompressing an already compressed image.

Resave all JPEG images as TIFFs before you even open them. This can be accomplished easily through the use of actions through Photoshop or Adobe Bridge. Please see Chapter 12, "Automation," to learn how to create actions and batch apply them through Bridge.

File Formats and Workflow

You will want to select file formats and establish how you want to use them based on your image editing, handling, and output requirements. Here are some file format workflow suggestions:

- Set up your Photoshop file handling preferences (Application/Edit ➢ Preferences ➢ File Handling) to always save images with three-character, lowercase extensions. Why not have Photoshop handle this tedious chore and provide cross-platform compatibility to boot? Plus, it can help prevent some typing mistakes. While you are there, also select the Always menu choice for the Maximize PSD and PSB File Compatibility option, to provide all your Photoshop images with maximum forward compatibility with future versions.
- If your system has extra drive space, make duplicate copies of all your original images. If you like, you can assign a custom keyboard shortcut to Image ➢ Duplicate.
- Resave all JPEG images as either TIFFs or PSD files prior to editing them in Photoshop.
- Save all your working files as PSD images.
- Create simplified final print images (TIFFs whenever possible) with all layers flattened and alpha channels removed. You can flatten visible layers and remove invisible layers and alpha channels by deselecting the Layers and Alpha Channels check boxes in the Save As dialog box.
- Place PSD files containing layers and alpha channels in InDesign or QuarkXPress documents only when it is necessary to maintain editability. Create and place simplified, flattened TIFF versions of these images prior to going to press whenever possible.
- When working with RAW images, save them as TIFFs to ensure that you always have access to the original RAW data.

Real World Scenario

File-Naming System

You will want to adopt a file-naming system that makes sense and works for you. Your file-naming system needs to be compatible with how you handle your images. Many companies that work with large numbers of customer files use job numbers. If you tend to create multiple versions of images, your file-naming system should reflect this as well.

You will note from my filename used earlier, `Clouds_RGB_300_1.psd`, that my basic file-naming system entails the following: logical name_color space_linear resolution_version #_file format extension. I will sometimes add a modifying name to the logical name, such as `Clouds_Type_RGB_300_1.tif` if I have created a specific version of that file that contains type.

This naming scheme works well for me. Yours will most likely be different. I suggest that you make a list of the key characteristics you would like to have in your filenames and design a system around that. Be prepared to change your mind and allow your naming system to evolve, especially at first, until you have a naming system that best suits your image use and workflow needs.

Printing from Photoshop

If you are printing your images during final output to a high-quality print device, such as an expanded-gamut seven- or eight-color ink-jet, you will want to print from Photoshop rather than from a page layout application such as InDesign or QuarkXPress. There is no need to place a linked file in a layout application when final output is to take place on this type of device.

Printing to High-Quality Printers

When you print from Photoshop to an ink-jet printer, be very clear about where the color conversion is taking place. Color conversion can take place in Photoshop or via the printer driver. In most cases, you will want to control this conversion through Photoshop by using either paper-specific profiles or your own custom color profiles. The more specific the color profile is to your printing device and paper, the higher quality and more consistent your results will be. Printer drivers will typically be using more-generic color profiles than the paper-specific profiles you can obtain, or the custom profiles you can create by using your own color management software.

If you are printing to an ink-jet printer as a final output device, you will likely be printing an RGB color space image with its conversion to an expanded gamut color space of cyan, magenta, yellow, light cyan, light magenta, and perhaps a choice of several black inks occurring through the printer driver. If, on the other hand, you are using your ink-jet printer as a proofing device for a commercial printing press, your printer will likely be fitted with a RIP specifically designed for this purpose, to which you will be sending images you have already converted to C, M, Y, and K process colors. So be very clear about your final output device and where your gamut conversion is occurring.

RGB vs. CMYK Images and Ink-Jets

When you print your images to an ink-jet printer, you will in most cases be printing an RGB image rather than a CMYK color space file. In fact, with many ink-jet print drivers and RIPs, if you send a CMYK file to the device, it will first convert it back to an RGB color space, and then perform its own conversion to CMYK. This is *not good!* Avoid this process at all costs, because your image will be converted through two color spaces and you have no control over that conversion. When in doubt, send an RGB image to an ink-jet.

Color Spaces, Color Gamuts, and Color Profiles

To be comfortable with the working fundamentals of color management, and to therefore be able to achieve the highest-quality and consistency of color printing output, it is helpful to be conversant with the three key components of color management: color spaces, color gamuts, and color profiles:

Color spaces are defined by the colorants you use when capturing, working, viewing, and outputting you images. RGB and CMYK are the two most common color spaces in which we work—RGB for capturing, editing, and viewing, and CMYK for printing.

Color gamut refers to the range of color values that a specific color device can reproduce. The color gamut of a device is affected by many variables, with the colorants (phosphors, inks, toners, and so forth) and substrate (paper, plastic, glass, and so forth) being the two most important.

Color profiles are files that contain information about the color gamut of a specific device/substrate combination. The more-specific and accurate the color profile is to the device/substrate combination to which you are printing, the higher-quality print you will get and the more-consistent your results will be.

Printing an Image from Photoshop: Photoshop vs. the Driver

When you print from Photoshop to an ink-jet or other high-quality printer, you will control part of the printing from within the Photoshop print dialog box and part from within the print driver dialog. You will want to be consistent with your print setups to achieve consistent high-quality results. Let's run through an example:

1. Open an image in Photoshop CS3.
2. Choose File ➢ Print. The Print dialog box appears (Figure 13.27). You will note that Photoshop CS3 uses a print-with-preview dialog as its default window.

3. The first step is to assign the printer to which you will be printing. Click the Printer menu (Figure 13.28) at the top of the Print dialog box. Choose the printer you want to use, here Stylus Photo R2400. (If you will be printing multiple images to this printer, you might want to set this as your default printer in your printer utility.)

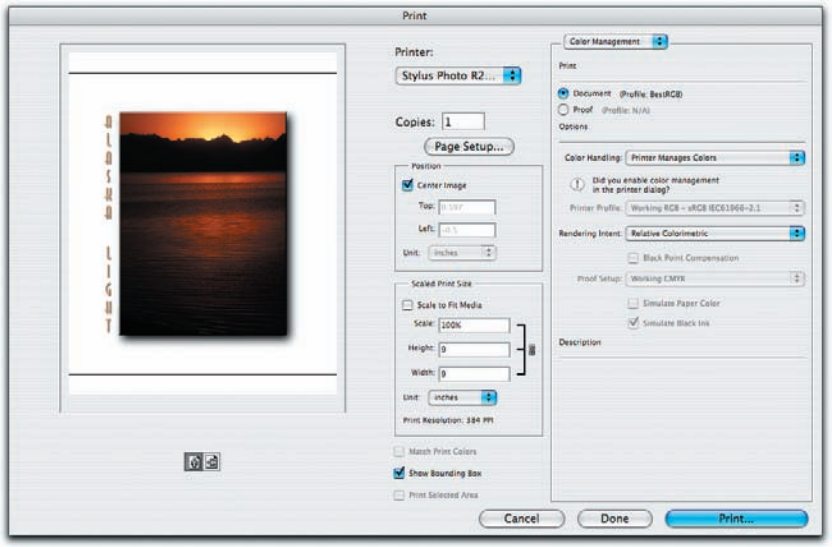
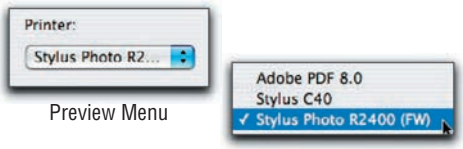


FIGURE 13.27
Photoshop's Print dialog box



Preview Menu

Encoding Menu

FIGURE 13.28
The Print dialog Printer menu

4. Click the menu in the upper-right corner of the Print dialog box and choose Color Management rather than Output (Figure 13.29). You would choose Output if you wanted to control commercial print output of this specific image from within Photoshop by setting printer marks and so forth from here. This is typically accomplished through a page layout document such as InDesign, where you are outputting multiple images and their accompanying type in a composite document.

5. Click the Document button located under the Print subtitle rather than Proof. You would select Proof if you wanted to print a proof of this image in order to simulate its appearance on another device.

6. Click the Color Handling menu and choose Photoshop Manages Color. Allowing Photoshop to manage the color will allow you to choose either a paper-specific profile (here) or a custom color profile if you have created one for your system. Note: If you choose Photoshop to manage the color, it is critical to deactivate the color management in the printer driver (see steps 13 and 14).

7. Now click the Printer Profile menu (Figure 13.30). Choose the color management profile that most closely matches the output device to which you will be printing. This should be either a paper-specific profile (shown here) or a custom profile you have created by using profile creation software based on your printer, inks, and paper. Here I have selected SPR2400 Premium Luster, one of my favorite papers for printing larger-format images.

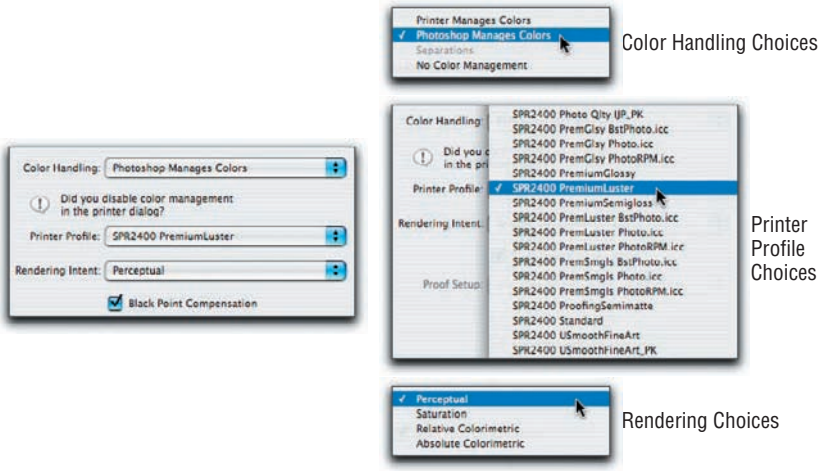


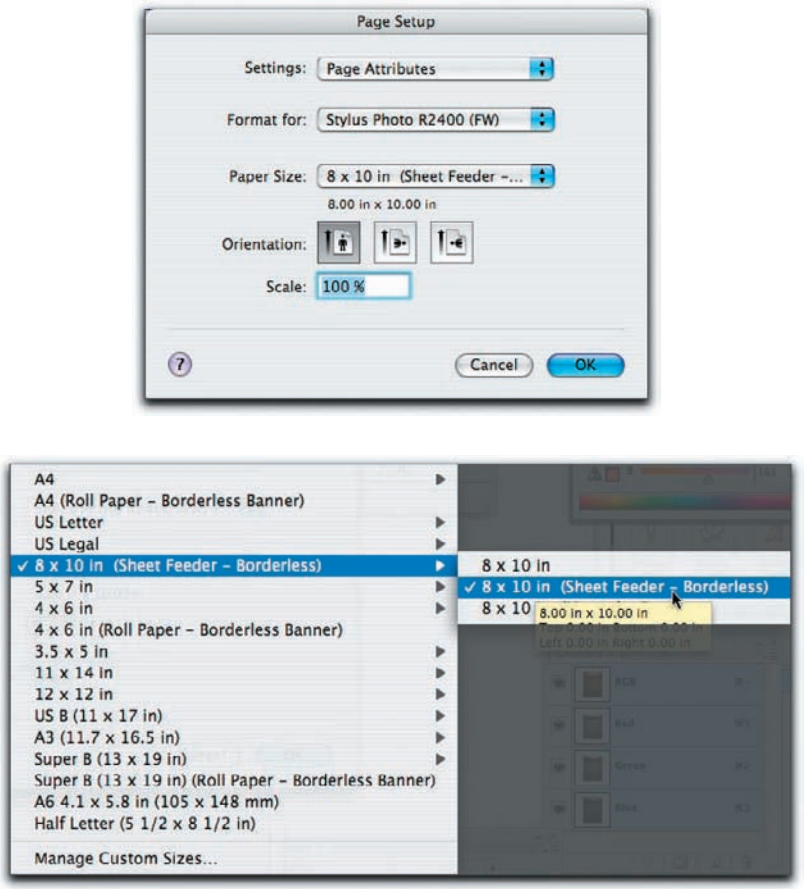
FIGURE 13.30
Color handling and profile choices

8. Now click the Rendering Intent menu. Choose Perceptual for most continuous tone images, because this will maintain the relative tonal value differences between colors as they are mapped from the RGB color gamut to the gamut of the printer/paper you have specified. Relative Colorimetric is another choice that some color management systems specify for continuous tone images. That option provides a more accurate numeric color match, but one not necessarily as visually pleasing, than the perceptual choice. The Relative Colorimetric choice is often used for proofing. For most continuous tone images, you will want to avoid Saturation (used for flat color images such as pie charts) and Absolute Colorimetric (used in some proofing systems for precise color value matching).

9. Select the Black Point Compensation check box. This will map the black tonal values in your original image to black in the final print, thereby helping to maintain the original contrast in the image.

10. Click the Page Setup button. The Page Setup dialog box appears (Figure 13.31). From the Format For menu, select the printer you will be using. From the Paper Size menu, select the dimensions of the paper on which you will be printing: 8 × 10 in (Sheet Feeder – Borderless). Note: Borderless prints are often separate selections from bordered prints.

FIGURE 13.31
Page Setup dialog box



11. Select the Orientation and Scale for your print, and click OK to close this Print Setup dialog box.

12. Now back in the Print dialog box, in the Position section, you can position your image on the print page, and in the Scale Print Size area assign the scaling you would like to apply.

Printing Tips

I recommend printing at 100% scale. If you need to scale your image for a final print, I suggest scaling the image in Photoshop followed up with a bit of sharpening to mitigate the softening that results from resampling (see Chapter 9, "Reducing Noise and Sharpening").

High-speed printing usually designates bidirectional printing (where the print head prints during both the left-to-right and right-to-left passes), which can sometimes reduce the accuracy of the printing and lower print quality. Test this by printing using both methods and closely viewing the results. If there is no discernable difference, use the bidirectional mode. Image quality sometimes suffers with the use of bidirectional printing due to a slight misalignment or difference in alignment and therefore placement of ink dots on the forward and backward passes of the ink-jet head. Less expensive printers, which have less accurate head tracking mechanisms, tend to exhibit more problems with bidirectional printing.

13. Click the Print button, and the Printer Specific Print dialog box appears. This is the dialog box you use to control the printer driver. This dialog will vary depending on your specific printer—in fact, it might vary greatly. However, there should always be two options available that you should pay close attention to: Print Setting and Color Management.

14. Click the third menu down and choose Color Management. Select the Off (No Color Adjustment) radio button (Figure 13.32). This is a critical setting to deactivate, because this will prevent any conflicts with the Color Management controls you activated in Photoshop. Again, your driver's dialog box will probably look different from this one, and you'll have to hunt for these options.

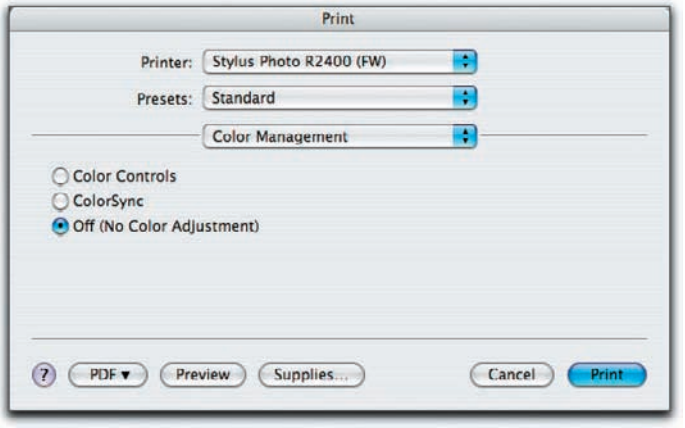
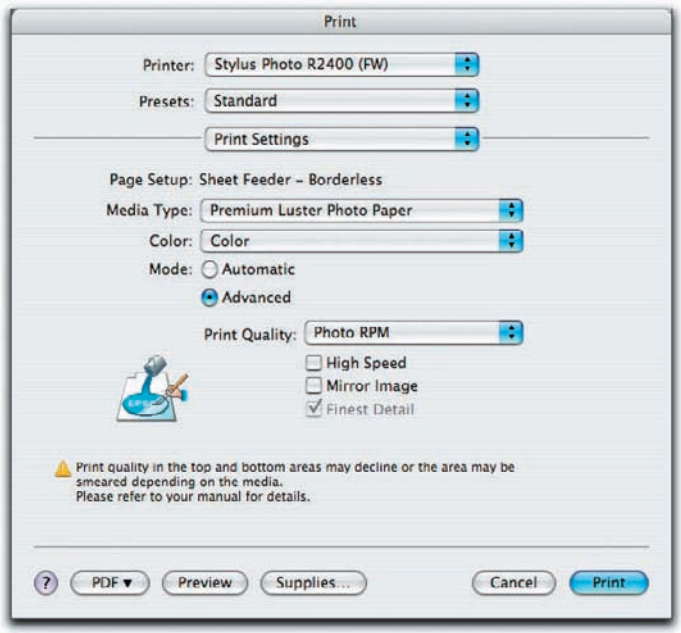


Figure 13.32
Color management *off* in the printer driver

15. Now select Print Settings from the same menu (Figure 13.33). Choose the paper on which you will be printing—here, Premium Luster. Choose the Print Mode (here, Color). You will typically have some print quality controls. Click the Print button to initiate the printing process.

FIGURE 13.33
Print settings in the printer driver



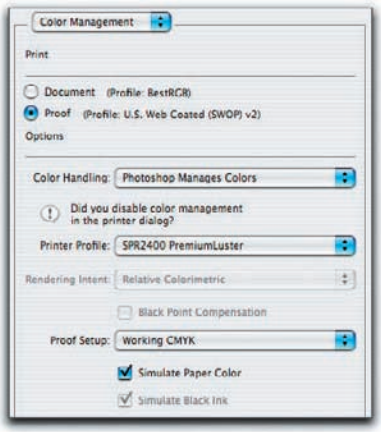
Proof Printing

You can also print proofs to simulate how your image will print on another print device. This is a good option whenever you are unable to print directly or economically to the destination output device, such as a commercial sheetfed printing press. The setup steps are similar to creating a final print, but with a few different menu choices.

Here are the steps you would go through to create a proof:

1. Select the Proof option rather than the Document option.
2. In the Printer Profile menu, select the device and paper you will be using to create your proof (here SPR2400 Premium Luster).
3. When you select Proof, a Proof Setup menu appears (Figure 13.34). Here you will select the device you selected for proofing (in this example, Working CMYK). See the next two sections for more on this.
4. You should also select the Simulate Paper Color check box to provide the best onscreen soft proof and print proof. Note that the onscreen simulated proof view of your image changes in the preview window on the left side of your Print dialog box.
5. Configure page setup and other portions of the Print dialog boxes as discussed previously under "Printing to High-Quality Printers."
6. Click the Print button and configure the printer driver Print dialog box as discussed previously.

FIGURE 13.34
Proof printing setup choices



Soft Proofing

In addition to print proofs, you can also create a soft proof (software proof) of your image onscreen that will simulate how your image will print on a particular printer/substrate combination.

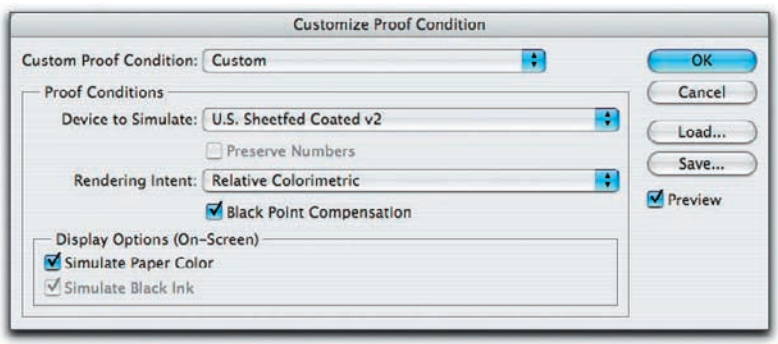
Soft proofing has progressed a great deal in the past few years. In fact, when properly configured and maintained, soft proofing can be as accurate as hard proofing for many purposes, and even superior in some cases. Accurate and consistent soft proofing requires that you do the following:

- Use a high-quality, fairly new monitor that can be calibrated.
- Calibrate your monitor by using a hardware calibration device.
- Create a hardware profile for your monitor.
- Work in color-neutral viewing conditions.
- Apply the proper proof setup options in Photoshop (see the following steps).
- Properly maintain all of the preceding items.

After the first four of these conditions are met, you must then apply the proper Proof Setup options in Photoshop. Here's how it's done:

1. Choose View ➢ Proof Setup ➢ Custom. The Customize Proof Condition dialog box appears (Figure 13.35).

FIGURE 13.35
Soft proofing setup choices



2. From the Device To Simulate menu, choose the final output device you would like to soft proof (here U.S. Sheetfed Coated v2).
3. From the Rendering Intent menu, choose Relative Colorimetric.

Which Rendering Intent?

You will typically use either Relative Colorimetric or Perceptual when converting most continuous tone color images. Relative Colorimetric conversion emphasizes more accurate color value to color value conversion, while the Perceptual emphasizes maintaining the relative differences between various colors. Often you will not see a significant difference between these two. Test them both using your typical images, and then consistently use one or the other.

4. Enable the Black Point Compensation and Simulate Paper Color options. Note: You can Load and Save these proofing setups by using the so-named buttons located on the right side of this dialog box. Click OK to apply these proofing simulation settings. The custom proofing settings that you assign here are available for selection in the Proof Setup menu that becomes active when you select Proof in the Print dialog (see the preceding "Proof Printing" section).
5. Choose View ➢ Proof Colors (or press ⌘/Ctrl+Y) to toggle Photoshop's onscreen proofing.
6. To view the colors in the image that Photoshop predicts will be out of gamut, and therefore not print within the gamut of the final output device, choose View ➢ Gamut Warning. Any areas within the image that are not within the gamut of the specified final proofing device/paper will be highlighted onscreen.

Converting RGB to CMYK in Photoshop

If you are preparing your image to be printed on a commercial printing press, most printing companies will request (and some require) that you perform your own RGB-to-CMYK conversion. It is indeed a good idea for you to take control of this conversion, because it ultimately allows you to control the final output.

Color Profiles in Photoshop

When you are working with images in Photoshop that are destined to be printed on a commercial printing press, they are typically in RGB color space and are converted for print to CMYK. Therefore, it is important that you define and assign a color profile to the RGB and CMYK color spaces that you will be working in and converting to in Photoshop. These are designated as the Working RGB and Working CMYK profiles in Photoshop's Color Settings dialog box. The Working RGB profile you assign will control how RGB images are displayed and viewed through Photoshop. The Working CMYK profile will control both the CMYK values that appear in the Info palette while viewing an RGB image, and the CMYK values that result when you complete an RGB-to-CMYK conversion.

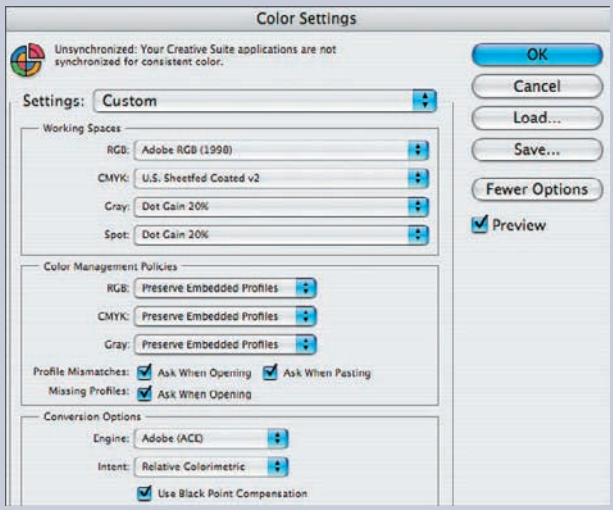
In Photoshop CS3, you can use preset color profiles to convert images from RGB to CMYK or you can designate a custom RGB-to-CMYK profile. Both options are covered in the following sections.

Real World Scenario

Preset Prepress Gamut Conversion

A whole series of RGB and CMYK color profiles are installed with Photoshop CS3, and you can also add your own custom profiles. Here is how you set up and use Photoshop CS3's Color Settings dialog box. Note that this section provides recommended general settings for preparing an image to print in a standard commercial sheetfed print environment in North America. However, it is always best to ask for and receive specific setting values from your printing company. Follow these steps:

1. Open and make a copy of a print image that needs to be converted from RGB to CMYK. Name this image with *CMYK* at the end of the filename—for example, Alaska Light_CMYK, so you can tell at a glance that it is a CMYK file. Converting a copy will protect the color integrity of the original RGB image.
2. Activate the Color Settings dialog box (Edit ➢ Color Settings or ⌘/Ctrl+K).



3. If you see a More Options check box, check it to reveal…more! At this point, you can click the Settings menu to see a variety of preset settings available in Photoshop. Continue on to create your own settings for U.S. Sheetfed Coated offset printing.
4. From the Working Spaces RGB menu, choose Adobe RGB (1998). The default here is the limited color gamut Internet RGB color space, sRGB. Adobe RGB is a larger, more flexible color space in which to work.

Some printing companies prefer to use ColorMatch RGB rather than Adobe RGB (1998). If you are preparing an image for output at a specific printing company, select the RGB working space that they recommend.

5. From the Working Spaces CMYK menu, choose U.S. Sheetfed Coated v.2 to specify the CMYK color space for a typical sheetfed press printing in the United States.

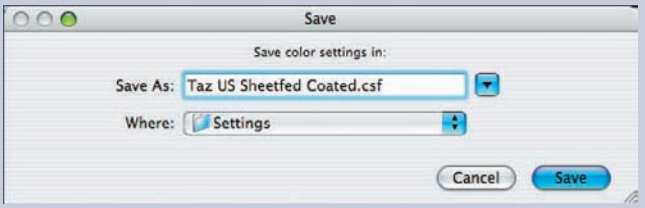
Note: I am having you select this color profile as an example. The color profiles that are loaded with and available through Photoshop are some industry standard profiles. Some printing companies use these, others have their own profiles that they prefer for you to use. In fact if your printing company is color savvy, they can provide you with all their preferred setup values in this Color Settings dialog box. They may even have a Color Settings File containing values for this entire dialog box that you can load through the Settings menu located at the top of this Color Settings dialog. A few enlightening minutes spent discussing the print companies preferences here can save lots of time and provide more dependable and better results.

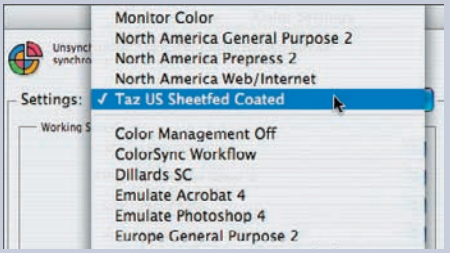
6. From the Conversion Options Engine menu, choose Adobe (ACE). This specifies the Color Management Module (CMM) that will be used to perform the conversion.

7. From the Intent menu, choose Relative Colorimetric. This and Perceptual are both commonly used for this conversion. Avoid the use of Saturation or Absolute Colorimetric here for continuous tone images. Saturation mode is used for flat color images when the most saturated and consistent colors are sought, while Absolute Colorimetric is used for some proofing devices.

8. Enable the Use Black Point Compensation option. This will ensure that any dark black areas in your original image will print as dark black in your final print, rather than lighter shades of gray. Using black point compensation will help preserve the original contrast of your image.

9. Click the Save button to name and save this Color Settings setup as U.S. Sheetfed Coated Setup. When you create and save this custom setting, it will appear as a choice in the Settings menu. This means that you can easily recall this setting at any time.





To learn how to create a custom CMYK color profile, skip ahead to the following section; otherwise, click the OK button to close the Color Settings dialog box.

10. After you have configured your Color Settings, you can choose Image ➢ Mode ➢ CMYK to convert your image from RGB to CMYK by using the CMYK color profile and settings you have assigned here.

This RGB–CMYK gamut conversion can be recorded as a Photoshop action and applied to multiple images by using the batch function described in Chapter 12, "Automation."

Custom Prepress Gamut Conversion

The previous section described a good generic setup for converting RGB or Lab color space images to CMYK for standard prepress printing in North America. This next set of instructions should be used for fine-tuning your CMYK gamut conversion. You may want to use this custom CMYK setup if you are unhappy with the results you are achieving when using the standard profiles. You can also use this setup in place of any custom profiles you have not received from your printing company. If you know where your job will be printed, it is a good idea to discuss the following setup information with your prepress manager, who can help you make your choices.

This section and the next show how to set up the Custom CMYK dialog box:

1. Open and make a copy of an image that requires RGB-to-CMYK conversion, or make a duplicate copy of the RGB image you already have open. When you name this image, include *CMYK* at the end of the filename (for example Alaska Light_CMYK), so you can tell at a glance that it is a CMYK file. Converting the copy protects the color integrity of the original RGB image.

2. If it is not already open, activate the Color Settings dialog box (Edit ➢ Color Settings or ⌘/Ctrl+K). Now choose Custom CMYK from the top of the Working Spaces CMYK menu. A Custom CMYK dialog box appears (Figure 13.36). This dialog allows you to create a custom CMYK color profile manually in Photoshop.

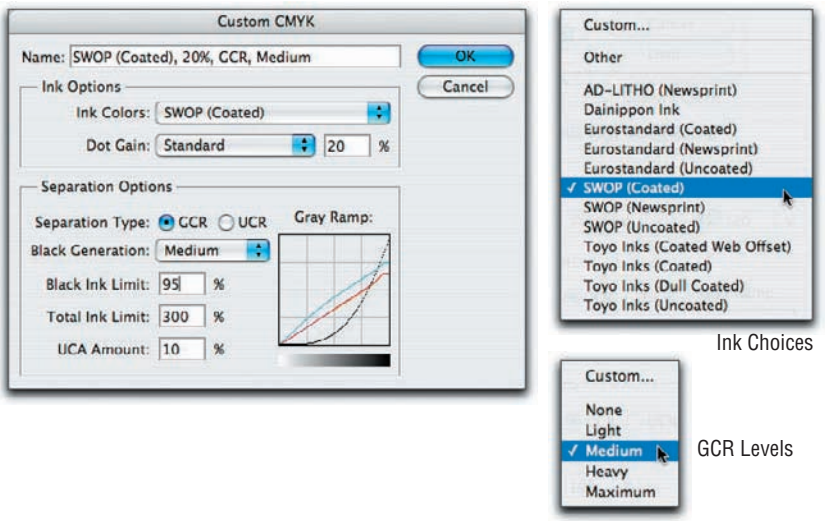


FIGURE 13.36 Custom CMYK dialog box

3. Click the Ink Colors pull-down menu and select one of the SWOP choices: SWOP (Coated), SWOP (Uncoated), or SWOP (Newsprint), depending on the type of paper on which your images will be printed. We will assume a coated stock and choose SWOP (Coated) here.

What Is SWOP?

SWOP stands for *Specifications for Web Offset Presses*; sheetfed printers also use these, although there are also specifications for sheetfed printers known as GRACoL standards (General Requirements for Applications in Commercial Offset Lithography). Newspapers have their own specifications, which are known as SNAP standards (Specifications for Newsprint Advertising Production).

4. In the Dot Gain menu, choose Standard (the default value), and enter a dot gain value in the Dot Gain window; 20% is a standard value, but it is best to obtain this value from your printing company. If you are printing on some other type of CMYK output device, you may want to experiment with various values here to achieve the overall lightness you prefer.

   Alternatively in the Dot Gain menu, choose Curves. This will allow you to control the dot gain for each of the four inks separately.

   For commercial printing, obtain the Dot Gain choice and values from your printing company. For other types of printing, these curves can be adjusted to suit a specific output device and paper stock. These curves can also be used to manually correct for the color cast of an output device (by adjusting the individual color curves found in the Dot Gain dialog) if no other neutralization methods are available.

Separation Options

Next, choose one of two methods for generating CMYK values and creating CMYK separations from RGB values: Under Color Removal (UCR) or Gray Component Replacement (GCR). Again, input from your printing company is important here.

Theoretically, the gamut conversion should be RGB to CMY. We add black (K) to our CMY images for two reasons: 1) so that we can create a good high-contrast black (which is difficult to accomplish by using just CMY inks), and 2) to reduce ink volumes, and particularly in the three-quarter-tone to shadow regions of our images, so as to allow us to maintain shadow detail when printing our images.

In general, UCR concentrates black (K) substitution from the three-quarter tone to the shadow, while GCR has more black (K) substitution through a larger tonal range of the image. GCR separations tend to be lighter and higher contrast, while UCR separations tend to have better color saturation. Discuss these trade-offs with your printer or experiment with both on your output device.

If you select either UCR or GCR, you will then want to fill in the black ink and total ink limits:

Black Ink Limits will typically vary from about 80 (newsprint) to 90–100 for commercial printing.

Total Ink Limits will vary from about 220 (news print) to 290–340 (coated stock). Total ink limits may exceed 340 when printing with stochastic (FM) dots. Consult your printing company for guidance.

If you select GCR, you will then want to select a Black Generation level from Light to Maximum. The higher the black substitution you choose, the more black will be substituted for CMY.

When GCR is selected, we have the opportunity to add extra color (10% added here) in the shadow region with Under Color Addition (UCA). This added color can be used to increase ink density in shadow regions, but be wary of its ability to plug up shadows. Use UCA carefully, because adding too much ink can destroy shadow detail.

A profile name is automatically generated and placed in the Name field at the top of the Custom CMYK dialog box—in this example, SWOP (Coated), 20%, GCR, Medium.) Accept or change this name as you like.

Wrapping Up

When you are finished configuring your Custom CMYK setup, wrap up with these steps:

1. Click the OK button (or press Enter). Your new Custom setup will now appear in the Working Spaces CMYK menu in the Color Settings dialog box.
2. After you have defined a specific setup of CMYK separation choices and values, this setup can be named and saved as a Photoshop profile and recalled at any time. Give your settings a descriptive name that will be easy to recognize—for instance, GCR_Coated_300_95_10 (Figure 13.37). Click the Save button in the upper-right corner of the Color Settings dialog.

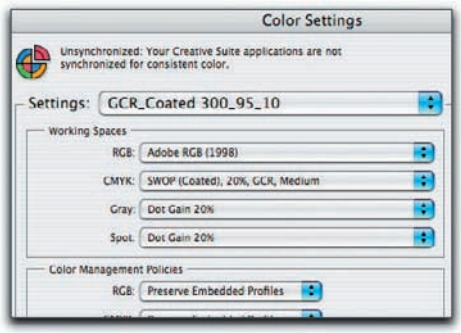


Figure 13.37
Custom color settings

3. To load a previously saved custom color setup, click the Load button in the upper-right corner of the Color Settings dialog.
4. After you have configured your Color Settings, you can choose Image ➢ Mode ➢ CMYK to convert your image from RGB to CMYK by using the CMYK color profile and settings you have assigned here. Or you can choose Edit ➢ Convert To Profile (Figure 13.38) and select the color profile of your choice from the Destination Space Profile menu.

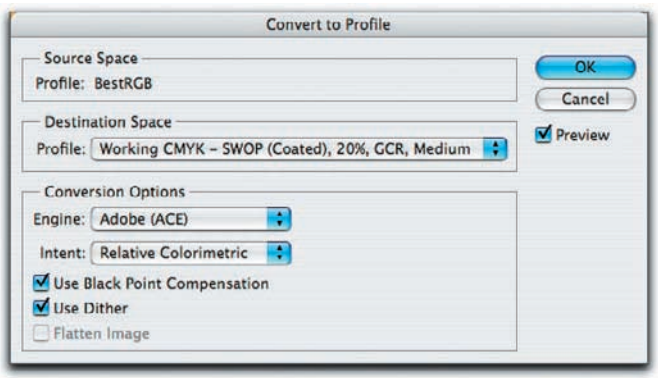


Figure 13.38
Convert To Profile dialog box

Using Custom ICC Color Profiles

If you or your printing company work in a color-managed workflow, you will want to substitute custom-made ICC color profiles in place of one of the supplied or manually made custom CMYK profiles for use in your gamut conversions. These custom ICC profiles can be substituted for the RGB and/or CMYK Working Spaces standard choices in the Color Settings dialog box. Follow these steps:

1. Copy a custom profile onto your computer hard disk. I suggest you create a folder into which you can place all of your custom profiles, or you can place any new color profiles into the default Adobe color settings folder:
   - In Windows, right-click a profile and select Install Profile. Alternatively, copy the profiles into the `WINDOWS\system32\spool\drivers\color` folder (Windows XP) or the `WINNT\system32\spool\drivers\color` folder (Windows 2000).
   - In Mac OS, copy profiles into the `/Library/ColorSync/Profiles` folder or the `/Users/username/Library/ColorSync/Profiles` folder.
2. After installing color profiles, be sure to restart Adobe applications.
3. Choose Edit ➢ Color Settings ➢ Working CMYK ➢ Load. The Load dialog box appears.
4. Navigate to the location of your color profile, select it, and click the Load button.
5. Save this profile as a part of your custom color settings as shown previously.

The Bottom Line

Choose the Proper File Formats and Simplify Your Print Images You can be confident that your images will be easily and accurately processed (RIPped) in a commercial print environment, when you select one of several file formats optimized for printing. In addition, simplifying your images will further improve the RIPability of your images.

> **Master It** If you perform a Save As to create a print image with the following characteristics, what file format are you using?: Flatten Layers, Remove Alpha, Save with IBM PC Byte Order, and No Compresssion.

Print from Photoshop to a High-Quality Ink-Jet Printer or Proofing Device When printing to high-quality inkjets, be very clear about your intended use of that device (final output versus proofing), and the color space of the image you are sending and where and how the gamut conversion is occurring, whether through Photoshop (usually preferred) or through the printer driver.

> **Master It** Even prior to opening any RGB images in Photoshop, assign the RGB and CMYK working color space profiles you intend to use. How do you decide this?

Create a Soft Proof You can create a soft proof to preview your images on screen to see how your images will appear when you print them.

> **Master It** The accuracy of your soft proof will depend upon having a calibrated monitor and properly specifying output conditions. What's the best way to go about this?

Convert Finalized Print Images from RGB to CMYK If you are preparing your images for final output on a commercial printing device, you will want to convert your images to CMYK using a working CMYK color profile for the final output device and paper on which you will be printing your images.

> **Master It** Where do you indicate to Photoshop the type of printing press and paper on which you will be printing your images?

Appendix

The Bottom Line

Chapter 1: Getting Started

Set Up Your Photoshop Preferences for Print Design/Production Designers depend on their Preferences settings to ensure a stable, trouble-free work environment. Using the Preferences dialog box in CS3, set the preferences that matter most to your print design/production workflow.

> **Master It** Access the Preferences dialog under the Photoshop menu (Mac) or the Edit menu (Windows). Scroll through the panels by clicking the Next and Prev buttons, or by pressing ⌘/Ctrl+1 for the first screen, ⌘/Ctrl+2 for the second screen, and so on all the way up to ⌘/Ctrl+9. Use what you learned in this chapter to set the preferences that work best for your system and your design/production workflow.
>
> **Solution** Solutions will vary depending on how you like to work. Choose the settings that make things easier for you as a designer and allow you to work faster in Photoshop. Performance preferences will vary depending on the amount of RAM and hard-disk space available on your system.

Create and Save a Print Design/Production Workspace Photoshop allows you to save your workspace environment so that you don't have to spend time repositioning palettes on the screen every time you launch the application. You can create and save a custom workspace for every type of image-editing work you do.

> **Master It** Arrange your palettes onscreen so that they take up the least amount of room possible. Try regrouping them, stacking them, and placing them in either side well. Make sure the most commonly used palettes are easily accessible. When your screen is set up the way you like, save the workspace. Create and save a workspace for every type of editing work you do in Photoshop.
>
> **Solution** Solutions will vary depending on how you like to work. To save your preferred work environment, choose Window ➢ Workspace ➢ Save Workspace. When the dialog appears, enter a name for the workspace and click OK. You can now restore your workspace whenever you like by selecting it under the Window ➢ Workspace submenu.

Customize Menus and Keyboard Shortcuts Photoshop CS3 allows you to hide and show menu commands and customize keyboard shortcuts. Being able to customize your workspace like this ensures that you'll always be working in a comfortable, uncluttered environment.

> **Master It** Try customizing the interface to display only the menu commands that you—a print designer—will really use. While you're at it, modify the keyboard shortcuts to make them easier for you to remember.

Solution Solutions will vary depending on how you like to work. Choose Edit ➢ Menus (or Edit ➢ Keyboard Shortcuts) and choose which menu type (application or palette) that you'd like to edit from the Menu For list. Toggle the triangle next to each menu name to view the various commands. Hide or show menu commands in any of the default sets by clicking in the Visibility column. Change or assign a keyboard shortcut by clicking in the Shortcut column and entering it via the keyboard. Any conflicting shortcuts will appear in a warning directly below. Save your custom sets by clicking the Save button next to the Set drop-down list. When the Save dialog appears, name the set and click the Save button. Your custom set is added to the Set drop-down list.

Choose the Proper Color Settings for a Print Production Workflow Photoshop contains enhanced color management features that can make screen colors come as close as possible to what you'll see in the final printed piece. Color management is intended to ensure that the colors you are viewing onscreen are displaying—as accurately as possible—a true representation of what your photos will look like upon final output.

Master It Choose the proper color settings for a print production workflow. Set up your RGB and CMYK working space profiles and preferred color management policies, including profile mismatch and missing profile warnings.

Solution The RGB working space profile should be set to Adobe RGB. The CMYK working space profile can vary depending on the type of work you are doing (see the list in the color management section of this chapter). Solutions for color management policies, including profile mismatch and missing profile warnings, can vary depending on your workflow scenario. For print design and production, sRGB profiles should always be converted to the Adobe RGB working space, and custom profiles should be preserved. Unless you're not planning to use color management at all (not recommended), never discard an embedded profile or leave an image untagged. Always embed profiles when saving images.

Save Images at the Proper Print Resolution Image resolution is determined by the number of pixels per inch (*ppi* for short) that an image contains. This is the measurement that tells us what each image's print size and quality will be upon output. To ensure that the images used in your design will print well, you need to first check the current resolution and document size before placing the image in your layout and printing from an application such as InDesign or QuarkXPress.

Master It Using what you have learned in this chapter, reduce the dimensions of a high-resolution image (220ppi or higher) without reducing its resolution or ultimately its print quality.

Solution Access the Image Size dialog box by choosing Image ➢ Image Size or pressing Option+⌘+I / Alt+Ctrl+I. Make sure the Resample Image option is selected and enter smaller dimensions in the Width and Height fields.

Chapter 2: Making Good Selections

Identify Which Selection Tool to Use for the Task at Hand As you edit images for print design, you are often faced with various selection tasks—everything from selecting an object and removing it from its background, to selecting and editing a small part of a much larger image.

Some selections are easier to make than others. Using what you learned about all of the selection-making tools in Photoshop CS3, identify which tool is best for the selection task at hand.

Master It Determine the type of selection you need to make (for example, a background or foreground object, a detailed or solid-color area, a high-contrast or low-contrast image). Based on what you now know about all of the selection tools available in Photoshop, identify which tool is best for the selection task at hand.

Solution Solutions will vary depending on the type of selection you need to make and the specifics of the image you are working with. Select the tool that will help you complete the task quickly, easily, and accurately.

Add to and Subtract from a Selection Path In many instances, it can be too difficult to select an entire object or region of a photo by using just one method or tool. In fact, good selections are often made in steps. This requires making your initial selection and then altering it by using additional tools, commands, and key modifiers.

Master It Open an image and make a selection with any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter. Locate some areas of the image that you would like to add to or subtract from the selection.

Solution Apply the Shift or Option/Alt keys as you work with the selection tools. Pressing and holding Shift or Option/Alt as you drag or click with the tool enables you to add or subtract pixels, respectively, from an existing selection path. Shift allows you to add; Option/Alt allows you to subtract.

Apply a Feathered (Soft) Edge to a Selection Another way to modify selections is to alter the edge of the selection path. Photoshop contains a Feather command for softening edges.

Master It By definition, a feathered edge is one that has a soft blur applied to it. Open an image, make a selection by using any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter, and apply a soft edge to the image. Use either the pre- or post-feathering methods described in the chapter.

Solution To pre-feather, enter a Feather amount in the Options palette before making a selection. To post-feather, choose Select ➢ Modify ➢ Feather after the selection is made and enter a Feather Radius value in the dialog box. Click OK to close the dialog and apply the soft edge. Feathered selection edges become apparent only after deleting the selected image area, making an adjustment, or filling with a color.

Save and Load Selections With Photoshop, you can also save and load your selection as an alpha channel or as a path. This can be especially useful when making detailed selections that you might want to use again.

Master It Open an image and make a complicated selection by using any of the selection tools except for the Magic Eraser, Background Eraser, or Extract filter. Save the selection by using either method described in this chapter.

Solution After the selection is complete, choose Select ➢ Save Selection. In the dialog box that appears, name the selection and click OK. The selection is saved in the Channels palette as an alpha channel mask. You can reload the selection at any time by choosing Select ➢ Load Selection.

Identify When to Use the Extract Filter There is more than one way to extract an image from its background in Photoshop. You can use the Magic Eraser to remove simple, solid-color backgrounds or use the Background Eraser to remove detailed backgrounds. But for more-advanced extractions, you should use the Extract filter.

Master It Open a photo containing an image that you would like to extract from its background. Be sure to choose an image with lots of edge detail, such as a head shot containing fly-away hair. Remove the image from its background by using the Extract filter.

Solution Access the Extract filter by choosing Filter ➢ Extract. Indicate what the foreground and background areas are by outlining the image with the Edge Highlighter tool. When you've finished marking the edges of the areas you want to retain, select the Fill tool and click inside the outlined image area. Click the Preview button in the upper right of the dialog box to see the extraction before it is applied. If necessary, you can use the various cleanup tools to fine-tune your selection and you can click Preview to update it. Click OK only when you are ready to extract. You cannot return to the dialog to edit the extraction after clicking OK.

Chapter 3: Working with Brushes

Customize and Create Your Own Brushes Photoshop allows you to edit existing brush presets or create new ones by using the Brushes palette. The flexibility that Photoshop's brushes offer can help you achieve just the right look when retouching, working with masks, or illustrating.

Master It Press B to access the Brush tool and then choose Window ➢ Brushes to display the Brushes palette. Select a brush from the Brush Presets Picker.

Solution As described in the chapter, use the various controls in the Brushes palette to create your custom brush. Remember that you can base a custom brush on an existing preset from any of Photoshop's brush libraries, which are accessible from the palette flyout menu.

Save Custom Brush Settings as Presets Being able to save your brush settings can be a huge time-saver. When you develop one that works best for you, definitely save it, or else be faced with the daunting task of trying to remember detailed settings in order to re-create a brush.

Master It Using what you now know about the Brushes palette, choose the brush settings that you'd like to apply to your custom brush.

Solution To save your custom settings as a preset, choose New Brush Preset from the Brushes palette or Presets Picker flyout menu. In the dialog box that appears, enter a name for the brush and click OK.

Use Brushes Effectively with Layer Masks Painting in layer masks with the Brush tool is a great hands-on technique for combining image layers in a print montage. It can also be a useful technique for controlling adjustments made in Photoshop, including smart filters. Working with brushes and layer masks not only provides an incredible amount of editing control—it's also completely nondestructive.

Master It Create a montage by using layer masks and brushes, or use them to control where adjustments are applied in a more hands-on fashion.

Solution Add a layer mask to an image layer by clicking the layer mask icon at the bottom of the Layers palette (adjustment layers come with a layer mask already attached). Choose a brush from the Presets Picker in the Options palette and set the brush Opacity. Paint in the mask with black to conceal the image or the adjustment; paint with white to reveal the image or the adjustment.

Restore with History Painting The History Brush allows you to paint backward in time. It can be used to restore parts of an image that were accidentally damaged or erased. For example, specific areas of an image that have become too blurry as the result of applying a noise reduction filter to the entire photo can be restored by using the History brush.

Master It Work with confidence as you edit your images. It helps to know that if you get into a situation where you'd like to restore certain areas of an image to a previous history state, you can with the History brush.

Solution Choose Window ➢ History to display the History palette. Then specify a history state in the palette by clicking to the left of it. Choose a brush from the Presets Picker in the Options palette and set the brush Opacity. Begin painting in the areas of the image that need to be restored. As you add brushstrokes, Photoshop goes back in time and magically restores those areas.

Chapter 4: Working with Color

Replace Colors in an Image Replacing colors is one of the most common tasks print designers and production artists are faced with. Using what you learned about color replacement in Photoshop CS3, identify which tool is best for the task at hand.

Master It Determine the color areas that you'd like to replace. If the color replacement task requires a selection, identify the best selection tool to use for the job and make the selection. Choose one of the color replacement techniques described in this chapter and proceed to recolor the image.

Solution The Color Replacement tool can be useful for small, quick, and easy color changes. For more-advanced color replacement, use the Replace Color command. For nondestructive color replacement, use a Color Range selection with a Hue/Saturation adjustment layer.

Colorize a Grayscale Image Adding color to a grayscale image is definitely a hands-on process. There is no "one-click," quick and easy way to go about hand-tinting an image. However, if the images in your print design or layout require it, you can get really creative when performing this task.

Master It Open a grayscale image or convert an RGB or CMYK image to grayscale mode.

Solution Determine the colors you'd like to add to the image and save them as swatches in the Swatches palette. Use Hue/Saturation adjustment layers or brushes, or a combination of both, to colorize the image.

Convert a Color Image to Grayscale There are several ways to convert color images to black-and-white, but not every method gives you good print results. Depending on the images you're

working with and the type of print job you're designing, some conversion methods may require quite a bit of tweaking afterward.

Master It Open an RGB or CMYK image. Determine how it will be used in your print design and ultimately how it will be output. Choose one of the grayscale conversion techniques described in this chapter and proceed to convert the image to black-and-white.

Solution When converting a color image to grayscale, use the new Black And White adjustment layer, which is nondestructive and allows you the most control. A good alternative is the Channel Mixer adjustment layer.

Add a Spot Color Channel If you need to match a specific color used in a corporate logo, or if you'd like to include a bright orange, green, or metallic color that you can't achieve with CMYK process inks—spot colors are the way to go.

Master It Open a grayscale or color image that you'd like to add a spot color channel to. The image can be a two- or three-color graphic, or a five- or six-color graphic, depending on how you are using spot colors. Determine whether to overprint or knock out the added spot colors.

Solution Add a spot color channel by choosing New Spot Channel from the Channels palette menu. For preview purposes, enter the proper value in the Solidity field. Paint or add text in the channel by using black, white, or gray. Depending on how you're using spot color, knock out and trap the spot colors accordingly. Save the image as a DCS 2.0 file, or if placing the image in InDesign, you can also save as a PSD.

Create a Duotone Smaller print budgets can sometimes limit you to a two-spot-color design, in which case Photoshop's duotone mode is the perfect solution. Duotone mode allows you to create flexible yet stylish images quickly and easily.

Master It Open a grayscale image or convert an RGB or CMYK image to grayscale mode.

Solution Convert the grayscale image to Duotone mode. Choose the colors you'd like to use and adjust their curves by using the controls in the Duotone Options dialog box. Choose colors that work well with the shadow and highlight areas of your image. Adjust the curves for each ink to enhance the overall tonal range of the image. Save the image as a DCS 2.0 file, or if placing the image in InDesign, you can also save as a PSD.

Chapter 5: Tonal and Color Corrections

Color Correct an Image by Using Levels or Curves When it comes to color correction, Levels and Curves offer you the most control. Both commands allow you to make selective as well as global corrections by applying nonlinear adjustments.

Master It Open an RGB image that needs color correction. Determine whether the correction requires a detailed tonal correction, or a quick global correction, such as lightening the midtones or increasing overall image and contrast. Choose the proper tool (Levels or Curves) and make the necessary adjustment.

Solution Curves is the best tool for making detailed tonal corrections; Levels is better for making quick global corrections. Keep in mind that Curves can do everything that Levels

can, but not vice versa. The Curves dialog box is a little harder to work with than Levels but offers you more tonal control. After you determine which tool is best for the adjustment task, use the techniques described in this chapter to color-correct your image by using either tool.

Use Selective Color to Fine-Tune a CMYK Image Another very useful tool for applying specific color adjustments to print images is Selective Color. The Selective Color feature mimics the color controls found in most prepress drum scanners, which allow you to adjust "color in color."

Master It Open a CMYK image that requires some prepress tweaking, such as an image containing lighter flesh tones, or an image that contains a large amount of black coverage.

Solution Choose Image ➢ Adjustments ➢ Selective Color or add a Selective Color adjustment layer. For an image containing lighter flesh tones, increase the yellow and decrease the magenta. Refer to the Info palette for proper values, making sure the yellow value is at least 3% higher than the magenta. For an image containing a large amount of black coverage, choose Blacks from the Colors menu and increase the Cyan value to at least 40%.

Use Photo Filter to Enhance or Correct Color Temperature Some of the images that you are working with may contain an unwanted "warm" or "cool" color cast, whereas others may require a warm or cool shift to emphasize the subject matter of the photo—and ultimately the message of your print design or layout.

Master It Open an image that requires a shift in color temperature. Use Photo Filter to either remove a warm or cool color cast, or to add a slight color cast that emphasizes the subject matter of the photo.

Solution Choose Image ➢ Adjustments ➢ Photo Filter or add a Photo Filter adjustment layer. Choose a warming or cooling filter to apply to your image from the Photo Filter dialog box. Use the warming filters to remove blue color casts, or add emphasis to warm images such as a sunrise or sunset. Cooling filters can remove yellow or orange color casts, or accentuate the cold nature of images such as a winter scene. Determine the density (or strength) of the filter by moving the Density slider at the bottom of the dialog.

Apply Lighting Adjustments by Using Shadows/Highlights Shadows/Highlights is a decent alternative to Curves for correcting dark, backlit images, which are often caused by the light source being positioned behind the forefront object in a photo. Shadows/Highlights can also be used to correct images that contain overly bright highlights, which are often caused by the photographer using a flash setting that is set too high.

Master It Use Shadows/Highlights as an alternative to Curves for correcting a backlit image or an image that contains overly bright highlights.

Solution Open a poorly lit image and choose Image ➢ Adjustments ➢ Shadows/Highlights. Select the Show More Options check box at the bottom of the dialog to display additional settings. Make sure the Preview check box is selected in order to see your adjustments applied as you make them. Use the Shadows and/or Highlights sliders to apply the brightness adjustment. Add midtone contrast by using the Midtone Contrast slider. If necessary, increase color saturation by using the Color Correction slider.

Chapter 6: Enhancing and Retouching for Print

Enhance Print Images by Using Photoshop's Cloning Tools Many images have defects, blemishes, or other unwanted contents that can be removed without evidence of their prior existence.

Master It Determine which unwanted image elements you want to remove from your image. Then review the various tools you can use to remove these image elements including the Clone Stamp tool, the Patch tool, the two Healing tools, and your selection tools such as your lasso and Edge Refinement tools.

Solution Isolate the image elements and their surrounding area on their own layers. Configure your tools including brush size, clone source, opacity, and selection area and selection edge characteristics. Your configuration will depend upon the tool and the image element to be removed. Your goal is remove the unwanted item with no visible evidence of your work.

Clone between Images with the New Clone Source Panel Complex cloning from multiple sources can be nicely handled through the use of the Clone Source palette.

Master It Identify the image into which you would like to clone one or more image segments. Also, identify up to five clone areas you would like to use. These clone areas can be in multiple images.

Solution Using the Clone Source palette to specify the file, location, opacity and blending mode of each of the clone areas you would like to acquire. Activate the clone destination image and area. Sequentially select the clone sources through the Clone Source palette and paint these in to the location in the destination image.

Retouch High-Resolution Photographs Retouching allows you to subtly alter the contents of an image. Retouching is commonly performed on people images, but these same techniques can be applied to many types of images. The key to all these types of adjustments is subtlety.

Master It Identify all the retouch areas, such as skin blemishes, fly away hairs, and wrinkles, you would like to modify.

Solution Select the clone or healing tool of choice, with the healing tools being most helpful when underlying tones need to be preserved. Subtlety is the key to many successful retouching adjustments. Controlling opacity and/or blending either of the tool or of the layer on which the retouch is performed can be used to control the extent of the retouch.

Apply Geometric Enhancements (Crop, Straighten, and Distort) Geometric adjustments such as cropping, straightening, and removing distortion can improve the final version of an image. In each case you want to pay attention to the technical details of the image such as linear resolution and output dimension to make sure you are creating a print ready image, and minimizing interpolation. Cropping an image typically requires the most attention to these technical details.

Master It Identify an image that you would like to crop. Determine the output dimensions you will need.

Solution Make a copy of your image and activate the Image Size dialog. Set the image output dimensions without the applying interpolation (uncheck Resample Image). Make any linear resolution adjustments to create a ~300ppi image (check Resample Image). Configure the Crop tool options palette with the output dimensions and linear resolution you desire. Set and apply the crop with the configured crop tool. Apply sharpening to mitigate the impact of any softening that occurred as a result of interpolation during resampling. (See Chapter 9 for more insights into sharpening.)

Chapter 7: Combining Image Layers

Combine Image Layers by Using Layer Opacity and Blend Modes Layer opacity and blend modes allow you to combine image layers and create special effects. You can use the Layers palette to adjust the opacity value for individual layers, and change the way layers interact with each other by applying different blend modes.

Master It Create a multilayered composite containing several image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using the Layers palette opacity controls and blend mode options.

Solution Select each individual image layer separately and decrease its opacity value in the Layers palette. Refer to the document window to determine how much of the "see-through" effect you'd like to apply to the layer. To add a special effect to a selected layer, choose a different blend mode from the Layers palette Mode menu.

Combine Image Layers by Using Layer Masks and Gradients Layer masks allow you to conceal (or reveal) specific image areas—*and* they work nondestructively.

Master It Create a multilayered composite containing at least two image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using layer masks and gradients.

Solution To apply a layer mask to an image layer, you must first select the layer in the Layers palette, and then click the Layer Mask button at the bottom of the Layers palette. Press G on the keyboard to access the Gradient tool, and then choose a preset gradient from the Gradient Picker in the Options palette (or create your own custom gradient by using the Gradient Editor), and click and drag in any direction in the mask.

Combine Image Layers with Editable Text by Using Vector Masks One of the most interesting and effective ways of making text and photos work together is to fill the characters of large display type with an image. The great thing about type masks is that they allow you to edit the text, and thus change the crop area, at any time—without damaging any pixels!

Master It Open the image that you'd like to place inside some type. Press D to reset the application default colors of black foreground and white background. Cut the image to a new layer above the Background. Enter a new name for the layer. Now add some bold text on a new layer underneath the image.

Solution Create a group by Option/Alt+clicking between the Shape layer and the image layer above it in the Layers palette. The image is automatically cropped inside the shape. If you'd like to adjust the crop, you can select the image layer and reposition it inside the shape with the Move tool.

Combine Image Layers by Using Blending Options One other advanced way to combine image layers is to apply the Blending Options available in the Layer Style dialog box. These options allow you to create transparent areas in a selected image layer based on how bright or dark the image is.

Master It Create a multilayered composite containing at least two image layers. Position the images wherever you like within the boundaries of the canvas. Now blend them together by using advanced blending options.

Chapter 8: Layer Styles and Filter Effects

Apply Layer Styles Unlike filters, layer styles allow you to edit applied effects dynamically without having to create a smart object version of the image layer first. This means that you can apply editable effects to a selected image, shape, or type layer without permanently altering any pixels. Because they work nondestructively, layer styles are referred to as *live effects*.

Master It Select any type, shape, or image layer containing transparent or masked areas (including image layers converted to smart objects) and use any of the three methods described in the chapter to access the Layer Style dialog box.

Solution In the Layer Style dialog box, choose which effects you'd like to enable from the menu on the left. Click the check box next to an effect's name (or the name itself) to turn it on. Doing so automatically displays the controls for the chosen effect on the right side of the dialog. Using what you learned in the chapter, play around with the control settings, and use the Preview option to decide whether you like what you see.

Save Custom Styles The Styles palette in Photoshop allows you to save your favorite layer style combinations for later use.

Master It Apply layer styles to a selected layer in the Layers palette by using the Layer Style dialog box. Choose Window ➢ Styles to display the Styles palette.

Solution From the Layers palette, select the layer containing the effects, and use any of the four methods described in the chapter to save them as a style.

Apply "Smart Filters" to Your Print Images With Photoshop CS3, any of the default filters that are installed with the application are automatically treated as "live" effects when applied to smart objects. This means that you can now preserve the ability to edit most filters that are applied to smart objects. These "smart filters" behave very much like adjustment layers, allowing you to alter settings at any time after the effect is applied, without losing pixel data or compromising image quality.

Master It To apply a smart filter, you must first convert the image layer into a smart object. To do so, choose Convert To Smart Object from the Layers palette flyout menu or from the Layer ➢ Smart Objects submenu. You can also choose Filter ➢ Convert For Smart Filters. After the layer is converted, Photoshop displays a Smart Object icon in the bottom-right corner of the layer image thumbnail in the Layers palette.

Solution From the Filter menu, choose a filter to apply to the smart object. Note that Extract, Liquify, Pattern Maker, and Vanishing Point, as well as any additional third-party filters that have been installed, cannot be applied as "smart filters." You can apply as many filters as you like, including filter combinations made with the Filter Gallery. Although technically not a filter, you can also apply the Shadows/Highlights adjustment as a smart filter.

Create Eye-Catching Print Graphics with the Filter Gallery The Filter Gallery allows you to choose from a select group of filter effects and apply several of them to an image at once. Filter Gallery effects can also be applied to smart objects as a smart filter.

Master It From the Layers palette, select the layer that you would like to apply a Filter Gallery effect to. Access the Filter Gallery by choosing it from the Filter menu or by choosing any filter that is handled by the gallery interface, such as the Artistic, Brush Strokes, or Sketch subsets.

Solution Pick and choose which filter to apply to a selected effect layer by clicking on a thumbnail from the filter menu list. To add more effects, click the Create New Effect layer icon and click a different thumbnail from the menu. As you adjust the settings for added effect layers, notice how they interact with the settings applied to the effect layers positioned below. Repositioning the order of the layers can produce different results. Applying these filters by using effect layers in the Filter Gallery is the only way to get them to interact in this way. Applying them separately without using effect layers does not produce the same effect.

Chapter 9: Reducing Noise and Sharpening

Effectively Remove Digital Capture Noise Noise in digital images can have many sources. Recognizing the digital data and removing it prior to sharpening is a key to creating good quality images.

Master It Open an image with noise. Look through your channels to identify whether the noise or pattern is distributed symmetrically across all three channels, or if some channels have more noise than others. Why would this matter?

Solution Once you have identified and located your noise, select tools and techniques that will allow you to minimize the smoothing of your image while still allowing you to remove the offending pixel patterns and apply sharpening. You can either apply individual smoothing filters such as Blurring and/or some of the noise specific filters such as median or Dust & Scratches, or you can use the Reduce Noise filter. Either of these approaches can be applied to the Master channel image or to individual channels.

Remove JPEG Degradation Compression related artifacts are commonly found in many digital camera images as well as web images saved in compressed format. These artifacts can significantly degrade the detail in an image. Applying sharpening to compression artifact just makes them worse, so they must be removed prior to sharpening.

Master It Learn to recognize the familiar pattern of rectangular pixel pattern groups that are harbingers of compression.

Solution Zoom in on the rectangular pixel group pattern and watch the contrast between the pixels reduce as you smooth the image. Apply just enough smoothing to remove the artifacts. Sometimes you will be better off not sharpening images that have been highly compressed, because the compression artifacts are too pervasive to remove enough to allow sharpening.

Descreen Scanned-In Halftone Patterns Printed images that are captured and digitized will often contain the pattern of the halftone dots (screen pattern) that made up the image.

Master It Captured print screens are usually made worse by reprinting them, creating patterns known as moiré patterns. So recognizing and removing the screen pattern is critical to perform prior to reprinting.

Solution Screened print patterns of halftone dots are typically distributed across all three channels, although the intensity may vary from one channel to another. Applying the median filter is an effective tool in removing captured halftone dot patterns. Slight blurring of individual channels can be used to fine-tune the pattern removal. Follow-up sharpening will help return some of the focus lost during pattern removal.

Sharpen Images for High-Resolution Print Output Nearly all digital images need to be sharpened. Just the process of capturing an image with a digital capture device such as a scanner or digital camera softens an image.

Master It Photoshop offers a variety of different sharpening tools. Choosing the best tools and methods is the key to sharp images. Which are the most common, and how do you know when to use each?

Solution Sharpening should occur at the end of your image handling workflow in Photoshop. All image correction and adjustment and pattern removal should be completed prior to sharpening. For global image sharpening only Unsharp Mask and Smart Sharpen offer enough control of the amount and distribution of sharpening to warrant their use. Unsharp Mask is the simpler and easier of the two sharpening tools to use and can be used to good effect on images that do not contain significant critical highlight and/or shadow detail areas. While both tools offer Amount and Radius values to control how much sharpening is applied, only Smart Sharpen offers the ability to control the distribution of sharpening via tonal range, which is crucial to maintaining critical highlight and shadow values during sharpening. Even greater control of the distribution of sharpening can be realized through the use of selections masks, High Pass, Maximum and Minimum filters in conjunction with Unsharp Mask and Smart Sharpen tools.

Chapter 10: Editing in Camera Raw

Prepare RAW Images for Print RAW files are made up of unprocessed data just as it is captured by the camera's image sensor. Shooting in RAW format allows you to capture a wider range of colors and acquire much more accurate image detail, and editing them in Camera Raw is nondestructive. This means that no matter what adjustments you've made when using the plug-in, you can always revert to the original "as shot" settings at any time. This makes for an even wider safety net than working with adjustment layers in the Photoshop workspace.

Master It Open a RAW image that Camera Raw can recognize, or convert the image to DNG format by using the Adobe DNG Converter application. Proceed to make adjustments in Camera Raw that will enhance the print quality of the image, such as tonal and color corrections, noise reduction, and sharpening.

Solution Take advantage of the exposure controls that are not available in the Photoshop workspace. If you like working in Camera Raw, you can also use the available controls for making simple tonal and color adjustments; however, be aware that you won't have access to other valuable features that are available only in Photoshop, such as layers, masks, and filters. After you've finished editing in Camera Raw, click Open to bring the image into Photoshop. Proceed to make any additional tweaks necessary and then save the image in a file format that is suitable for output as the image is placed in a layout application.

Edit TIFFs and JPEGs with Camera Raw With CS3, you can now edit TIFFs and JPEGs in Camera Raw. This is a huge advantage to graphic designers as well as photographers, because it gives you access to the exposure controls and white balance settings that were previously applicable only to RAW files.

Master It Open a TIFF or JPEG image in Camera Raw from Bridge or by using the File ➢ Open (Mac) or File ➢ Open As (Win) command.

Solution When using the Open command, be sure to choose Camera Raw from the Format menu (Mac) or Open As menu (Win) in the Open dialog box. Take advantage of the exposure controls that are not available in the Photoshop workspace. You may also want to take advantage of the auto white balance setting in Camera Raw, because it works well and is quicker and easier than working with the eyedroppers in the Curves or Levels dialogs in Photoshop. If you like working in Camera Raw, you can also use the available controls for making simple tonal and color adjustments; however, be aware that you won't have access to other valuable features that are available only in Photoshop, such as layers, masks, and filters. When you've finished editing in Camera Raw, click Open to bring the image into Photoshop. Proceed to make any additional tweaks necessary and then save the image in a file format that is suitable for output after the image is placed in a layout application.

Adjust Multiple Images with Synchronized Camera Raw Settings Camera Raw allows you to open multiple images in the dialog at a time and synchronize applied settings. When they are synchronized, adjustments made to one image are applied to all images in the group. This can be a huge time-saver when working with print images that contain similar characteristics, such as lighting, color, and contrast.

Master It Open a group of similar images in Camera Raw by selecting them in Bridge and double-clicking, or by selecting them from the system folder and pressing ⌘/Ctrl+O. With images that are selected from Bridge or from the system folder, you can also choose Open With Adobe Photoshop CS3 from the contextual menu (Control+click—Mac, or right-click with a two-button mouse).

Solution Select the images in Camera Raw by clicking the Select All button (you must have more than one image thumbnail selected at a time to gain access to the Synchronize button). With all the images selected, click the Synchronize button to display the Synchronize dialog box. Choose the settings you would like to Synchronize and click OK. If you like working in Camera Raw, you can also use the available controls for making simple tonal and color adjustments; however, be aware that you won't have access to other valuable features that are available only in Photoshop, such as layers, masks, and filters. After you've finished editing in Camera Raw, click Open to bring the image into Photoshop. Proceed to make any additional tweaks necessary and then save the image in a file format that is suitable for output after the image is placed in a layout application.

Chapter 11: CS3 Integration

Create and Save a Custom Bridge Workspace The Bridge interface is easy to customize. The only items that can't be moved, resized, or hidden are the tools and the title bar that are located at the top of the window.

Master It Start by taking a look at the built-in workspaces that come installed with Bridge. It's much easier and less time-consuming to identify a built-in workspace that comes close to your idea of the perfect work environment and then customize it to suit your needs.

Solution You can hide or show the different panels by selecting them under the Window menu. To reposition panels in the window, click the tab containing a panel's name, and then hold down the mouse button and drag it to a new location. Release the mouse button when either a thick blue line or a thick blue box appears. To save your preferred panel arrangement, choose Window ➢ Workspace ➢ Save Workspace. When the Save Workspace dialog

box appears, enter a name for your workspace and click OK. You can now restore your workspace whenever you like by selecting it under the Window ➢ Workspace submenu.

Synchronize Color Settings through Bridge CS3 contains enhanced color management settings that can make screen colors come as close as possible to what you'll see in the final printed piece. When you are using Bridge, the color settings for all the applications in the Creative Suite can be synchronized.

Master It When implementing color management into your workflow, I recommend keeping the suite applications synchronized at all times. The CS3 synchronized color settings are enabled by default. This means that *all the applications in the suite* are using the same color settings.

Solution You can change the color settings for all the suite applications at once by choosing Edit ➢ Creative Suite Color Settings and choosing a different option in the Suite Color Settings dialog box. A brief description is listed next to each setting name in the dialog. If the suite color settings become unsynchronized, you can resynchronize them by opening Bridge and choosing Edit ➢ Creative Suite Color Settings. Select a color setting from the Suite Color Settings dialog box and click Apply.

Access Layer Comps from InDesign and Illustrator When it comes to print design, there is no other tool that gives you more creative control than layer comps. What makes this feature so attractive to designers is that it allows you to store all your layout ideas in one file and access them later in Photoshop, InDesign, or Illustrator.

Master It Using the Layer Comps palette, save several layer comps in a Photoshop layout document. The document can be a single-page (or single-spread) advertisement, a cover design, or any other type of print layout that contains a predominant number of bitmap graphics. Save the document as a PSD file.

Solution **InDesign**: Import the PSD into your InDesign document by using the File ➢ Place command (⌘/Ctrl+D). To access the Image Import Options dialog box, enable Show Import Options before clicking Open. Click the Layers tab at the top of the dialog box to access the Layers panel. In the Layer Comp section of the panel, choose a layer comp from the drop-down list provided. Any layer comp comments that were saved in the PSD are displayed in the window beneath the Layer Comp list. Click OK to place the PSD. To display a different layer comp after the PSD is placed, choose Object ➢ Object Layer Options. In the resulting dialog box, select a different layer comp from the drop-down list. Select the Preview check box to view your changes in the document as you make them. When you've finished, click OK to close the dialog box and apply your changes.

Illustrator: Import the PSD into your Illustrator document by using the File ➢ Place command. Unlike when placing a PSD in InDesign, the Import Options dialog box automatically appears and you do not have the option to bypass it. At the top of the Photoshop Import Options dialog box, choose a layer comp from the drop-down list provided. Any layer comp comments that were saved in the PSD are displayed in the window beneath the Layer Comp list. Select the Preview check box to view the layer comp in the dialog box before placing. Click OK to place the PSD. Unlike InDesign, after the image is placed, the only way to display a different layer comp is to re-import it.

Import and Export Paths between Photoshop and Illustrator Photoshop comes with a vast array of custom shapes. However, despite the slew of choices that Photoshop gives you, you

may still want to work with a custom shape that was created in Illustrator, such as a simple logo, end mark, or icon. It's also not uncommon for a designer to want to base a vector illustration on a path that was originally created in Photoshop. Thankfully, shapes and paths can be shared between the two applications.

Master It Locate an Illustrator or Photoshop file containing a path that you'd like to share between applications. Use one of the methods described in this chapter to import/export the path.

Solution **Copy/Paste**: To copy/paste a path from Photoshop into Illustrator, select the path with the Path Selection tool and copy it to the Clipboard (⌘/Ctrl+C). Then in Illustrator with the document open, apply the Paste command (⌘/Ctrl+V). A Paste Options dialog box appears, offering two options: Paste As Compound Shape (fully editable) or As Compound Path (faster). Choose the preferred paste option and click OK to work with the path in Illustrator.

When you copy/paste a path from Illustrator into Photoshop, the Paste dialog box appears, giving you the option to import the path as a rasterized image layer (pixels), a vector path (added to the Paths palette), or a Shape layer. Choose an option and click OK.

Drag and Drop from Photoshop: With both applications open, select the Photoshop path with the Path Selection tool and drag it onto the Pasteboard of the Illustrator document. Imported Photoshop paths remain fully editable in Illustrator.

Export from Photoshop: In Photoshop, choose File ➢ Export ➢ Paths To Illustrator. In the Export Paths dialog box that appears, choose the path from the Write/Paths drop-down list, and then select a Save As destination and click Save. You can then open the AI file in Illustrator, where the path will be fully editable.

Chapter 12: Automation

Record and Apply Actions An action is a recorded sequence of events that takes place in Photoshop. Whenever you play an action, all the recorded events are reenacted in order.

Master It The first thing to keep in mind when recording actions is that the task you're attempting to automate must be entirely methodical. To make the most out of actions in a print design/production workflow, it's best to keep them as simple and generic as possible. It helps to do a test run first. For more-involved actions, I suggest mapping out your steps on a piece of paper before recording.

Solution Choose Window ➢ Actions to open the Actions palette. Click the Create New Action button located at the bottom of the Actions palette, or choose New Action from the palette's flyout menu. In the New Action dialog box that appears, enter a name for the action and choose which set (of the currently displayed sets in the palette) that you'd like to save it in. Click the Record button in the New Action dialog. Perform the steps that make up the action. After you've completed the last step, click the Stop button at the bottom of the Actions palette, or choose Stop Recording from the palette's flyout menu. To run an action, select the action's title in the Actions palette and click the Play button.

Batch-Process an Action One of the most powerful ways to automate Photoshop is to apply the Batch command. Doing so allows you to run an action on a group of images all at once.

Master It To access the Batch dialog box from Photoshop, choose File ➢ Automate ➢ Batch. From the Set pop-up list at the top of the dialog box, choose which action set (of the currently loaded sets in the Actions palette) that you'd like to select an action from. Then from the Action list, choose the action you'd like to apply to the images.

Solution Be aware that the settings in the Batch dialog box are particularly counterintuitive. As described in the "Using Batch Automation" section of the chapter, use the settings to indicate where and how Photoshop should access the images, and what you'd like to do with them after the action has been applied. After you've finished entering all of your preferred settings, click OK to batch-process the files.

Automatically Crop and Straighten Photos Crop And Straighten Photos is another great Photoshop feature that you can use to perform one of the most mind-numbing production tasks.

Master It Gang-scan a group of photos over a solid-color background into Photoshop (place multiple photos on a flatbed scanner and scan them all at once). Make sure to leave at least ⅛″ of space between them.

Solution Choose File ➢ Automate ➢ Crop And Straighten Photos. Photoshop automatically detects the image boundaries and duplicates each one, fully cropped and straightened into its own image window.

Create a Contact Sheet The Contact Sheet II command automatically generates a thumbnail preview document. This feature can be helpful when trying to decide which images to use in a print layout.

Master It To access the Contact Sheet II dialog box, choose File ➢ Automate ➢ Contact Sheet II.

Solution As described in the "Creating a Contact Sheet" section of this chapter, use the settings in the Contact Sheet II dialog box to specify where to locate the images; what document dimensions, thumbnail size, and layout to use; and whether to include filenames as captions. Keep in mind that *not* including filenames pretty much defeats the purpose of creating a contact sheet. After all the contact sheet information is entered in the Contact Sheet II dialog box, click OK to generate the document.

Chapter 13: Saving, Printing, and Output

Choose the Proper File Formats and Simplify Your Print Images You can be confident that your images will be easily and accurately processed (RIPped) in a commercial print environment, when you select one of several file formats optimized for printing. In addition, simplifying your images will further improve the RIPability of your images.

Master It If you perform a Save As to create a print image with the following characteristics, what file format are you using?: Flatten Layers, Remove Alpha, Save with IBM PC Byte Order, and No Compresssion.

Solution It's a TIFF. You should also know the circumstances under which you would need to save an image in either EPS or DCS 2.0 format, and the advantages and potential challenges of saving and placing an image in PSD format.

Print from Photoshop to a High-Quality Ink-Jet Printer or Proofing Device When printing to high-quality inkjets, be very clear about your intended use of that device (final output versus proofing), and the color space of the image you are sending and where and how the gamut conversion is occurring, whether through Photoshop (usually preferred) or through the printer driver.

> **Master It** Even prior to opening any RGB images in Photoshop, assign the RGB and CMYK working color space profiles you intend to use. How do you decide this?
>
> **Solution** Try to use the same working RGB color space profile, such as Adobe RGB, throughout your RGB workflow until you need to convert to another final output color space, either a different RGB color space, such as sRGB for the Web, or a CMYK color space for commercial printing. For printing to an inkjet you will want to send an RGB image and specify a paper-specific profile and allow Photoshop to control the gamut conversion.

Create a Soft Proof You can create a soft proof to preview your images on screen to see how your images will appear when you print them.

> **Master It** The accuracy of your soft proof will depend upon having a calibrated monitor and properly specifying output conditions. What's the best way to go about this?
>
> **Solution** Obtain an external monitor calibration kit and calibrate your monitor. Using the Customize Proof Setup dialog (View ➢ Proof Setup ➢ Custom), specify the output profile for your final print device and printing conditions, and then turn on the proof preview.

Convert Finalized Print Images from RGB to CMYK If you are preparing your images for final output on a commercial printing device, you will want to convert your images to CMYK using a working CMYK color profile for the final output device and paper on which you will be printing your images.

> **Master It** Where do you indicate to Photoshop the type of printing press and paper on which you will be printing your images?
>
> **Solution** Using either your Color Setting dialog or the Convert to Profile dialog (Edit ➢ Convert To Profile) assign the CMYK destination profile and conversion options for the printing press and paper on which you will be printing and convert a copy of your RGB image to CMYK for printing.

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